SEQUENCE LISTING

<110> Brett P. Monia
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<120> ANTISENSE MODULATION OF FIBROBLAST GROWTH FACTOR RECEPTOR 2 EXPRESSION

<130> RTS-0250

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aagtgactgc agcagcagcg gcagcgcctc ggttcctgag cccaccgcag gctgaaggca 180

ttgcgcgtag tccatgcccg tagaggaagt gtgcagatgg gattaacgtc cacatggaga 240

tatggaagag gaccggggat tggtaccgta acc atg gtc agc tgg ggt cgt ttc 294
Met Val Ser Trp Gly Arg Phe
1 5

atc tgc ctg gtc gtg gtc acc atg gca acc ttg tcc ctg gcc cgg ccc 342
Ile Cys Leu Val Val Val Thr Met Ala Thr Leu Ser Leu Ala Arg Pro
10 15 20

tcc ttc agt tta gtt gag gat acc aca tta gag cca gaa gag cca cca 390
Ser Phe Ser Leu Val Glu Asp Thr Thr Leu Glu Pro Glu Glu Pro Pro
25 30 35

acc aaa tac caa atc tct caa cca gaa gtg tac gtg gct gcg cca ggg 438
Thr Lys Tyr Gln Ile Ser Gln Pro Glu Val Tyr Val Ala Ala Pro Gly
40 45 50 55

gag tcg cta gag gtg cgc tgc ctg ttg aaa gat gcc gcc gtg atc agt 486
Glu Ser Leu Glu Val Arg Cys Leu Leu Lys Asp Ala Ala Val Ile Ser
60 65 70

tgg act aag gat ggg gtg cac ttg ggg ccc aac aat agg aca gtg ctt 534
Trp Thr Lys Asp Gly Val His Leu Gly Pro Asn Asn Arg Thr Val Leu
75 80 85

att ggg gag tac ttg cag ata aag ggc gcc acg cct aga gac tcc ggc 582
Ile Gly Glu Tyr Leu Gln Ile Lys Gly Ala Thr Pro Arg Asp Ser Gly
90 95 100

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ctc tat gct tgt act gcc agt agg act gta gac agt gaa act tgg tac     630
Leu Tyr Ala Cys Thr Ala Ser Arg Thr Val Asp Ser Glu Thr Trp Tyr
    105                 110                 115

ttc atg gtg aat gtc aca gat gcc atc tca tcc gga gat gat gag gat     678
Phe Met Val Asn Val Thr Asp Ala Ile Ser Ser Gly Asp Asp Glu Asp
120                 125                 130                 135

gac acc gat ggt gcg gaa gat ttt gtc agt gag aac agt aac aac aag     726
Asp Thr Asp Gly Ala Glu Asp Phe Val Ser Glu Asn Ser Asn Asn Lys
                140                 145                 150

aga gca cca tac tgg acc aac aca gaa aag atg gaa aag cgg ctc cat     774
Arg Ala Pro Tyr Trp Thr Asn Thr Glu Lys Met Glu Lys Arg Leu His
            155                 160                 165

gct gtg cct gcg gcc aac act gtc aag ttt cgc tgc cca gcc ggg ggg     822
Ala Val Pro Ala Ala Asn Thr Val Lys Phe Arg Cys Pro Ala Gly Gly
        170                 175                 180

aac cca atg cca acc atg cgg tgg ctg aaa aac ggg aag gag ttt aag     870
Asn Pro Met Pro Thr Met Arg Trp Leu Lys Asn Gly Lys Glu Phe Lys
    185                 190                 195

cag gag cat cgc att gga ggc tac aag gta cga aac cag cac tgg agc     918
Gln Glu His Arg Ile Gly Gly Tyr Lys Val Arg Asn Gln His Trp Ser
200                 205                 210                 215

ctc att atg gaa agt gtg gtc cca tct gac aag gga aat tat acc tgt     966
Leu Ile Met Glu Ser Val Val Pro Ser Asp Lys Gly Asn Tyr Thr Cys
                220                 225                 230

gtg gtg gag aat gaa tac ggg tcc atc aat cac acg tac cac ctg gat    1014
Val Val Glu Asn Glu Tyr Gly Ser Ile Asn His Thr Tyr His Leu Asp
            235                 240                 245

gtt gtg gag cga tcg cct cac cgg ccc atc ctc caa gcc gga ctg ccg    1062
Val Val Glu Arg Ser Pro His Arg Pro Ile Leu Gln Ala Gly Leu Pro
        250                 255                 260

gca aat gcc tcc aca gtg gtc gga gga gac gta gag ttt gtc tgc aag    1110
Ala Asn Ala Ser Thr Val Val Gly Gly Asp Val Glu Phe Val Cys Lys
    265                 270                 275
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gtt tac agt gat gcc cag ccc cac atc cag tgg atc aag cac gtg gaa    1158
Val Tyr Ser Asp Ala Gln Pro His Ile Gln Trp Ile Lys His Val Glu
280                 285                 290                 295

aag aac ggc agt aaa tac ggg ccc gac ggg ctg ccc tac ctc aag gtt    1206
Lys Asn Gly Ser Lys Tyr Gly Pro Asp Gly Leu Pro Tyr Leu Lys Val
                300                 305                 310

ctc aag gcc gcc ggt gtt aac acc acg gac aaa gag att gag gtt ctc    1254
Leu Lys Ala Ala Gly Val Asn Thr Thr Asp Lys Glu Ile Glu Val Leu
            315                 320                 325

tat att cgg aat gta act ttt gag gac gct ggg gaa tat acg tgc ttg    1302
Tyr Ile Arg Asn Val Thr Phe Glu Asp Ala Gly Glu Tyr Thr Cys Leu
        330                 335                 340

gcg ggt aat tct att ggg ata tcc ttt cac tct gca tgg ttg aca gtt    1350
Ala Gly Asn Ser Ile Gly Ile Ser Phe His Ser Ala Trp Leu Thr Val
    345                 350                 355

ctg cca gcg cct gga aga gaa aag gag att aca gct tcc cca gac tac    1398
Leu Pro Ala Pro Gly Arg Glu Lys Glu Ile Thr Ala Ser Pro Asp Tyr
360                 365                 370                 375

ctg gag ata gcc att tac tgc ata ggg gtc ttc tta atc gcc tgt atg    1446
Leu Glu Ile Ala Ile Tyr Cys Ile Gly Val Phe Leu Ile Ala Cys Met
                380                 385                 390

gtg gta aca gtc atc ctg tgc cga atg aag aac acg acc aag aag cca    1494
Val Val Thr Val Ile Leu Cys Arg Met Lys Asn Thr Thr Lys Lys Pro
            395                 400                 405

gac ttc agc agc cag ccg gct gtg cac aag ctg acc aaa cgt atc ccc    1542
Asp Phe Ser Ser Gln Pro Ala Val His Lys Leu Thr Lys Arg Ile Pro
        410                 415                 420

ctg cgg aga cag gta aca gtt tcg gct gag tcc agc tcc tcc atg aac    1590
Leu Arg Arg Gln Val Thr Val Ser Ala Glu Ser Ser Ser Ser Met Asn
    425                 430                 435

tcc aac acc ccg ctg gtg agg ata aca aca cgc ctc tct tca acg gca    1638
Ser Asn Thr Pro Leu Val Arg Ile Thr Thr Arg Leu Ser Ser Thr Ala
440                 445                 450                 455
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gac acc ccc atg ctg gca ggg gtc tcc gag tat gaa ctt cca gag gac    1686
Asp Thr Pro Met Leu Ala Gly Val Ser Glu Tyr Glu Leu Pro Glu Asp
                460                 465                 470

cca aaa tgg gag ttt cca aga gat aag ctg aca ctg ggc aag ccc ctg    1734
Pro Lys Trp Glu Phe Pro Arg Asp Lys Leu Thr Leu Gly Lys Pro Leu
            475                 480                 485

gga gaa ggt tgc ttt ggg caa gtg gtc atg gcg gaa gca gtg gga att    1782
Gly Glu Gly Cys Phe Gly Gln Val Val Met Ala Glu Ala Val Gly Ile
        490                 495                 500

gac aaa gac aag ccc aag gag gcg gtc acc gtg gcc gtg aag atg ttg    1830
Asp Lys Asp Lys Pro Lys Glu Ala Val Thr Val Ala Val Lys Met Leu
    505                 510                 515

aaa gat gat gcc aca gag aaa gac ctt tct gat ctg gtg tca gag atg    1878
Lys Asp Asp Ala Thr Glu Lys Asp Leu Ser Asp Leu Val Ser Glu Met
520                 525                 530                 535

gag atg atg aag atg att ggg aaa cac aag aat atc ata aat ctt ctt    1926
Glu Met Met Lys Met Ile Gly Lys His Lys Asn Ile Ile Asn Leu Leu
                540                 545                 550

gga gcc tgc aca cag gat ggg cct ctc tat gtc ata gtt gag tat gcc    1974
Gly Ala Cys Thr Gln Asp Gly Pro Leu Tyr Val Ile Val Glu Tyr Ala
            555                 560                 565

tct aaa ggc aac ctc cga gaa tac ctc cga gcc cgg agg cca ccc ggg    2022
Ser Lys Gly Asn Leu Arg Glu Tyr Leu Arg Ala Arg Arg Pro Pro Gly
        570                 575                 580

atg gag tac tcc tat gac att aac cgt gtt cct gag gag cag atg acc    2070
Met Glu Tyr Ser Tyr Asp Ile Asn Arg Val Pro Glu Glu Gln Met Thr
    585                 590                 595

ttc aag gac ttg gtg tca tgc acc tac cag ctg gcc aga ggc atg gag    2118
Phe Lys Asp Leu Val Ser Cys Thr Tyr Gln Leu Ala Arg Gly Met Glu
600                 605                 610                 615

tac ttg gct tcc caa aaa tgt att cat cga gat tta gca gcc aga aat    2166
Tyr Leu Ala Ser Gln Lys Cys Ile His Arg Asp Leu Ala Ala Arg Asn
                620                 625                 630
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gtt ttg gta aca gaa aac aat gtg atg aaa ata gca gac ttt gga ctc    2214
Val Leu Val Thr Glu Asn Asn Val Met Lys Ile Ala Asp Phe Gly Leu
            635                 640                 645

gcc aga gat atc aac aat ata gac tat tac aaa aag acc acc aat ggg    2262
Ala Arg Asp Ile Asn Asn Ile Asp Tyr Tyr Lys Lys Thr Thr Asn Gly
        650                 655                 660

cgg ctt cca gtc aag tgg atg gct cca gaa gcc ctg ttt gat aga gta    2310
Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Val
    665                 670                 675

tac act cat cag agt gat gtc tgg tcc ttc ggg gtg tta atg tgg gag    2358
Tyr Thr His Gln Ser Asp Val Trp Ser Phe Gly Val Leu Met Trp Glu
680                 685                 690                 695

atc ttc act tta ggg ggc tcg ccc tac cca ggg att ccc gtg gag gaa    2406
Ile Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu
                700                 705                 710

ctt ttt aag ctg ctg aag gaa gga cac aga atg gat aag cca gcc aac    2454
Leu Phe Lys Leu Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn
            715                 720                 725

tgc acc aac gaa ctg tac atg atg atg agg gac tgt tgg cat gca gtg    2502
Cys Thr Asn Glu Leu Tyr Met Met Met Arg Asp Cys Trp His Ala Val
        730                 735                 740

ccc tcc cag aga cca acg ttc aag cag ttg gta gaa gac ttg gat cga    2550
Pro Ser Gln Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg
    745                 750                 755

att ctc act ctc aca acc aat gag gaa tac ttg gac ctc agc caa cct    2598
Ile Leu Thr Leu Thr Thr Asn Glu Glu Tyr Leu Asp Leu Ser Gln Pro
760                 765                 770                 775

ctc gaa cag tat tca cct agt tac cct gac aca aga agt tct tgt tct    2646
Leu Glu Gln Tyr Ser Pro Ser Tyr Pro Asp Thr Arg Ser Ser Cys Ser
                780                 785                 790

tca gga gat gat tct gtt ttt tct cca gac ccc atg cct tac gaa cca    2694
Ser Gly Asp Asp Ser Val Phe Ser Pro Asp Pro Met Pro Tyr Glu Pro
            795                 800                 805
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tgc ctt cct cag tat cca cac ata aac ggc agt gtt aaa aca tga        2739
Cys Leu Pro Gln Tyr Pro His Ile Asn Gly Ser Val Lys Thr
        810                 815                 820

atgactgtgt ctgcctgtcc ccaaacagga cagcactggg aacctagcta cactgagcag  2799

ggagaccatg cctcccagag cttgttgtct ccacttgtat atatggatca gaggagtaaa  2859

taattggaaa agtaatcagc atatgtgtaa agatttatac agttgaaaac ttgtaatctt  2919

ccccaggagg agaagaaggt ttctggagca gtggactgcc acaagccacc atgtaacccc  2979

tctcacctgc cgtgcgttct ggctgtggac cagtaggact caaggtggac gtgcgttctg  3039

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acaaatgcag tatataggtg ctggatgtat gtaaatatat tcaaattatg tataaatata  3159

tattatatat ttacaaggag ttatttttg tattgatttt aaatggatgt cccaatgcac  3219

ctagaaaatt ggtctctctt tttttaatag ctatttgcta aatgctgttc ttacacataa  3279

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tgtaatttaa gtggcatttc tatgcaggca gcacagcaga ctagttaatc tattgcttgg  3459

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gcagattaca ctgatcttat gtgttacaaa attggagaaa gtatttaata aaacctgtta 4179

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cagcagcagt gggagcagga acagcagtaa caacagcaac agcagcacag ccgcctcaga 480

gctttgctcc tgagcccctg tgggctgaag gcattgcagg tagcccatgg tctcagaaga 540

agtgtgcaga tgggattacc gtccacgtgg agatatggaa gaggaccagg gattggcact 600

gtgacc atg gtc agc tgg ggg cgc ttc atc tgc ctg gtc ttg gtc acc 648
Met Val Ser Trp Gly Arg Phe Ile Cys Leu Val Leu Val Thr
1 5 10

atg gca acc ttg tcc ctg gcc cgg ccc tcc ttc agt tta gtt gag gat 696
Met Ala Thr Leu Ser Leu Ala Arg Pro Ser Phe Ser Leu Val Glu Asp
15 20 25 30

acc act tta gaa cca gaa gag cca cca acc aaa tac caa atc tcc caa 744

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Thr Thr Leu Glu Pro Glu Glu Pro Pro Thr Lys Tyr Gln Ile Ser Gln
                 35                  40                  45

cca gaa gcg tac gtg gtt gcc ccc ggg gaa tcg cta gag ttg cag tgc     792
Pro Glu Ala Tyr Val Val Ala Pro Gly Glu Ser Leu Glu Leu Gln Cys
             50                  55                  60

atg ttg aaa gat gcc gcc gtg atc agt tgg act aag gat ggg gtg cac     840
Met Leu Lys Asp Ala Ala Val Ile Ser Trp Thr Lys Asp Gly Val His
         65                  70                  75

ttg ggg ccc aac aat agg aca gtg ctt att ggg gag tat ctc cag ata     888
Leu Gly Pro Asn Asn Arg Thr Val Leu Ile Gly Glu Tyr Leu Gln Ile
     80                  85                  90

aaa ggt gcc aca cct aga gac tcc ggc ctc tat gct tgt act gca gct     936
Lys Gly Ala Thr Pro Arg Asp Ser Gly Leu Tyr Ala Cys Thr Ala Ala
 95                 100                 105                 110

agg acg gta gac agt gaa act tgg atc ttc atg gtg aat gtc aca gat     984
Arg Thr Val Asp Ser Glu Thr Trp Ile Phe Met Val Asn Val Thr Asp
                115                 120                 125

gcc atc tca tct gga gat gat gag gac gac aca gat agc tcc gaa gac    1032
Ala Ile Ser Ser Gly Asp Asp Glu Asp Asp Thr Asp Ser Ser Glu Asp
            130                 135                 140

gtt gtc agt gag aac agg agc aac cag aga gca ccg tac tgg acc aac    1080
Val Val Ser Glu Asn Arg Ser Asn Gln Arg Ala Pro Tyr Trp Thr Asn
        145                 150                 155

acc gag aag atg gag aag cgg ctc cac gct tgt cct gcc gcc aac act    1128
Thr Glu Lys Met Glu Lys Arg Leu His Ala Cys Pro Ala Ala Asn Thr
    160                 165                 170

gtg aag ttc cgc tgt ccg gct ggg ggg aat cca acg tcc aca atg agg    1176
Val Lys Phe Arg Cys Pro Ala Gly Gly Asn Pro Thr Ser Thr Met Arg
175                 180                 185                 190

tgg tta aaa aac ggg aag gag ttt aag cag gag cat cgc att gga ggc    1224
Trp Leu Lys Asn Gly Lys Glu Phe Lys Gln Glu His Arg Ile Gly Gly
                195                 200                 205

tat aag gta cga aac cag cac tgg agc ctt att atg gaa agt gtg gtc    1272
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Tyr Lys Val Arg Asn Gln His Trp Ser Leu Ile Met Glu Ser Val Val
            210                 215                 220

ccg tca gac aaa ggc aac tac acc tgc ctg gtg gag aat gaa tac ggg    1320
Pro Ser Asp Lys Gly Asn Tyr Thr Cys Leu Val Glu Asn Glu Tyr Gly
        225                 230                 235

tcc atc aac cac acc tac cac ctg gat gtc gtt gaa cgt tca cca cac    1368
Ser Ile Asn His Thr Tyr His Leu Asp Val Val Glu Arg Ser Pro His
    240                 245                 250

cgt ccc atc ctc caa gct gga ctg cct gca aat gcc tcc acg gtg gtc    1416
Arg Pro Ile Leu Gln Ala Gly Leu Pro Ala Asn Ala Ser Thr Val Val
255                 260                 265                 270

gga ggg gat gtg gag ttt gtc tgc aag gtt tac agc gat gcc cag ccc    1464
Gly Gly Asp Val Glu Phe Val Cys Lys Val Tyr Ser Asp Ala Gln Pro
                275                 280                 285

cac atc cag tgg atc aag cac gtg gaa aag aac ggc agt aaa aac ggg    1512
His Ile Gln Trp Ile Lys His Val Glu Lys Asn Gly Ser Lys Asn Gly
            290                 295                 300

cct gat ggg ctg ccc tac ctc aag gtt ctg aaa gct gcc ggt gtt aac    1560
Pro Asp Gly Leu Pro Tyr Leu Lys Val Leu Lys Ala Ala Gly Val Asn
        305                 310                 315

acc acg gac aaa gag att gag gtt ctc tat att cgg aat gta act ttt    1608
Thr Thr Asp Lys Glu Ile Glu Val Leu Tyr Ile Arg Asn Val Thr Phe
    320                 325                 330

gag gat gct ggg gaa tat acg tgc ttg gcg ggt aat tct atc ggg ata    1656
Glu Asp Ala Gly Glu Tyr Thr Cys Leu Ala Gly Asn Ser Ile Gly Ile
335                 340                 345                 350

tcc ttt cac tct gca tgg ttg aca gtt ctg cca gcg cct gtg aga gag    1704
Ser Phe His Ser Ala Trp Leu Thr Val Leu Pro Ala Pro Val Arg Glu
                355                 360                 365

aag gag atc acg gct tcc cca gat tat ctg gag ata gct att tac tgc    1752
Lys Glu Ile Thr Ala Ser Pro Asp Tyr Leu Glu Ile Ala Ile Tyr Cys
            370                 375                 380

ata ggg gtc ttc tta atc gcc tgc atg gtg gtg aca gtc atc ttt tgc    1800
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Ile Gly Val Phe Leu Ile Ala Cys Met Val Val Thr Val Ile Phe Cys
        385                 390                 395

cga atg aag acc acg acc aag aag cca gac ttc agc agc cag cca gct    1848
Arg Met Lys Thr Thr Thr Lys Lys Pro Asp Phe Ser Ser Gln Pro Ala
    400                 405                 410

gtg cac aag ctg acc aag cgc atc ccc ctg cgg aga cag gta aca gtt    1896
Val His Lys Leu Thr Lys Arg Ile Pro Leu Arg Arg Gln Val Thr Val
415                 420                 425                 430

tcg gcc gag tcc agc tcc tcc atg aac tcc aac acc ccg ctg gtg agg    1944
Ser Ala Glu Ser Ser Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg
                435                 440                 445

ata aca acg cgt ctg tcc tca aca gcg gac acc ccg atg cta gca ggg    1992
Ile Thr Thr Arg Leu Ser Ser Thr Ala Asp Thr Pro Met Leu Ala Gly
            450                 455                 460

gtc tcc gag tat gag ttg cca gag gat cca aag tgg gaa ttc ccc aga    2040
Val Ser Glu Tyr Glu Leu Pro Glu Asp Pro Lys Trp Glu Phe Pro Arg
        465                 470                 475

gat aag ctg acg ctg ggc aaa ccc ctg ggg gaa ggt tgc ttc ggg caa    2088
Asp Lys Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln
    480                 485                 490

gta gtc atg gct gaa gca gtg gga atc gat aaa gac aaa ccc aag gag    2136
Val Val Met Ala Glu Ala Val Gly Ile Asp Lys Asp Lys Pro Lys Glu
495                 500                 505                 510

gcg gtc acc gtg gca gtg aag atg ttg aaa gat gat gcc aca gag aag    2184
Ala Val Thr Val Ala Val Lys Met Leu Lys Asp Asp Ala Thr Glu Lys
                515                 520                 525

gac ctg tct gat ctg gta tca gag atg gag atg atg aag atg att ggg    2232
Asp Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys Met Ile Gly
            530                 535                 540

aaa cat aag aac att atc aac ctc ctg ggg gcc tgc acg cag gat gga    2280
Lys His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys Thr Gln Asp Gly
        545                 550                 555

cct ctc tac gtc ata gtt gaa tat gca tcg aaa ggc aac ctc cgg gaa    2328
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Pro Leu Tyr Val Ile Val Glu Tyr Ala Ser Lys Gly Asn Leu Arg Glu
    560                 565                 570

tac ctc cga gcc cgg agg cca cct ggc atg gag tac tcc tat gac att    2376
Tyr Leu Arg Ala Arg Arg Pro Pro Gly Met Glu Tyr Ser Tyr Asp Ile
575                 580                 585                 590

aac cgt gtc ccc gag gag cag atg acc ttc aag gac ttg gtg tcc tgc    2424
Asn Arg Val Pro Glu Glu Gln Met Thr Phe Lys Asp Leu Val Ser Cys
                595                 600                 605

acc tac cag ctg gct aga ggc atg gag tac ttg gct tcc caa aaa tgt    2472
Thr Tyr Gln Leu Ala Arg Gly Met Glu Tyr Leu Ala Ser Gln Lys Cys
            610                 615                 620

atc cat cga gat ttg gct gcc aga aac gtg ttg gta aca gaa aac aat    2520
Ile His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asn Asn
        625                 630                 635

gtg atg aag ata gca gac ttt ggc ctg gcc agg gat atc aac aac ata    2568
Val Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Ile Asn Asn Ile
    640                 645                 650

gac tac tat aaa aag acc aca aat ggg cga ctt cca gtc aag tgg atg    2616
Asp Tyr Tyr Lys Lys Thr Thr Asn Gly Arg Leu Pro Val Lys Trp Met
655                 660                 665                 670

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Pro Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys Leu Leu Lys Glu
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gcccacctgg cattttcttg gtgcaagggc atggagagat taagcgatat ctcccactct 132540
cttcctcttc ttatcaggcc accgatccta ttagaccagg accccattct tataacctcc 132600
tgtaatcttc attacctcct aactccatct cttagtcaca ttaggggggtt aggacttcaa 132660

catatgaatt ttggggtggg gggcacaatt cagtccatag tagccctcct ccttccttcc 132720
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agcccgggag gcttggcgcc ggcgaagacc caaggaccac tcttctgcgt ttggagttgc 180

tccccgcaac cccgggctcg tcgctttctc catcccgacc cacgcggggc cggggacaac 240

acaggtcgcg gaggagcgtt gccattcaag tgactgcagc agcagcgcag cgcctcggtt 300

cctgagccca ccgcagctga aggcattgcg cgtagtccat gcccgtagag gaagtgtgca 360

gatgggatta acgtccacat ggagatatgg aagaggaccg gggattggta ccgtaacc 418

atg gtc agc tgg ggt cgt ttc atc tgc ctg gtc gtg gtc acc atg gca 466
Met Val Ser Trp Gly Arg Phe Ile Cys Leu Val Val Val Thr Met Ala
1 5 10 15

acc ttg tcc ctg gcc cgg ccc tcc ttc agt tta gtt gag gat acc aca 514
Thr Leu Ser Leu Ala Arg Pro Ser Phe Ser Leu Val Glu Asp Thr Thr
20 25 30

tta gag cca gaa gag cca cca acc aaa tac caa atc tct caa cca gaa 562
Leu Glu Pro Glu Glu Pro Pro Thr Lys Tyr Gln Ile Ser Gln Pro Glu
35 40 45

gtg tac gtg gct gcg cca ggg gag tcg cta gag gtg cgc tgc ctg ttg 610

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Val Tyr Val Ala Ala Pro Gly Glu Ser Leu Glu Val Arg Cys Leu Leu
     50                  55                  60

aaa gat gcc gcc gtg atc agt tgg act aag gat ggg gtg cac ttg ggg     658
Lys Asp Ala Ala Val Ile Ser Trp Thr Lys Asp Gly Val His Leu Gly
 65                  70                  75                  80

ccc aac aat agg aca gtg ctt att ggg gag tac ttg cag ata aag ggc     706
Pro Asn Asn Arg Thr Val Leu Ile Gly Glu Tyr Leu Gln Ile Lys Gly
                 85                  90                  95

gcc aca cct aga gac tcc ggc ctc tat gct tgt act gcc agt agg act     754
Ala Thr Pro Arg Asp Ser Gly Leu Tyr Ala Cys Thr Ala Ser Arg Thr
            100                 105                 110

gta gac agt gaa act tgg tac ttc atg gtg aat gtc aca gat gcc atc     802
Val Asp Ser Glu Thr Trp Tyr Phe Met Val Asn Val Thr Asp Ala Ile
        115                 120                 125

tca tcc gga gat gat gag gat gac acc gat ggt gcg gaa gat ttt gtc     850
Ser Ser Gly Asp Asp Glu Asp Asp Thr Asp Gly Ala Glu Asp Phe Val
    130                 135                 140

agt gag aac agt aac aac aag aga gca cca tac tgg acc aac aca gaa     898
Ser Glu Asn Ser Asn Asn Lys Arg Ala Pro Tyr Trp Thr Asn Thr Glu
145                 150                 155                 160

aag atg gaa aag cgg ctc cat gct gtg cct gcg gcc aac act gtc aag     946
Lys Met Glu Lys Arg Leu His Ala Val Pro Ala Ala Asn Thr Val Lys
                165                 170                 175

ttt cgc tgc cca gcc ggg ggg aac cca atg cca acc atg cgg tgg ctg     994
Phe Arg Cys Pro Ala Gly Gly Asn Pro Met Pro Thr Met Arg Trp Leu
            180                 185                 190

aaa aac ggg aag gag ttt aag cag gag cat cgc att gga ggc tac aag    1042
Lys Asn Gly Lys Glu Phe Lys Gln Glu His Arg Ile Gly Gly Tyr Lys
        195                 200                 205

gta cga aac cag cac tgg agc ctc att atg gaa agt gtg gtc cca tct    1090
Val Arg Asn Gln His Trp Ser Leu Ile Met Glu Ser Val Val Pro Ser
    210                 215                 220

gac aag gga aat tat acc tgt gta gtg gag aat gaa tac ggg tcc atc    1138
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Asp Lys Gly Asn Tyr Thr Cys Val Val Glu Asn Glu Tyr Gly Ser Ile
225                 230                 235                 240

aat cac acg tac cac ctg gat gtt gtg gag cga tcg cct cac cgg ccc    1186
Asn His Thr Tyr His Leu Asp Val Val Glu Arg Ser Pro His Arg Pro
                245                 250                 255

atc ctc caa gcc gga ctg ccg gca aat gcc tcc aca gtg gtc gga gga    1234
Ile Leu Gln Ala Gly Leu Pro Ala Asn Ala Ser Thr Val Val Gly Gly
            260                 265                 270

gac gta gag ttt gtc tgc aag gtt tac agt gat gcc cag ccc cac atc    1282
Asp Val Glu Phe Val Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile
        275                 280                 285

cag tgg atc aag cac gtg gaa aag aac ggc agt aaa tac ggg ccc gac    1330
Gln Trp Ile Lys His Val Glu Lys Asn Gly Ser Lys Tyr Gly Pro Asp
    290                 295                 300

ggg ctg ccc tac ctc aag gtt ctc aag cac tcg ggg ata aat agt tcc    1378
Gly Leu Pro Tyr Leu Lys Val Leu Lys His Ser Gly Ile Asn Ser Ser
305                 310                 315                 320

aat gca gaa gtg ctg gct ctg ttc aat gtg acc gag gcg gat gct ggg    1426
Asn Ala Glu Val Leu Ala Leu Phe Asn Val Thr Glu Ala Asp Ala Gly
                325                 330                 335

gaa tat ata tgt aag gtc tcc aat tat ata ggg cag gcc aac cag tct    1474
Glu Tyr Ile Cys Lys Val Ser Asn Tyr Ile Gly Gln Ala Asn Gln Ser
            340                 345                 350

gcc tgg ctc act gtc ctg cca aaa cag caa gcg cct gga aga gaa aag    1522
Ala Trp Leu Thr Val Leu Pro Lys Gln Gln Ala Pro Gly Arg Glu Lys
        355                 360                 365

gag att aca gct tcc cca gac tac ctg gag ata gcc att tac tgc ata    1570
Glu Ile Thr Ala Ser Pro Asp Tyr Leu Glu Ile Ala Ile Tyr Cys Ile
    370                 375                 380

ggg gtc ttc tta atc gcc tgt atg gtg gta aca gtc atc ctg tgc cga    1618
Gly Val Phe Leu Ile Ala Cys Met Val Val Thr Val Ile Leu Cys Arg
385                 390                 395                 400

atg aag aac acg acc aag aag cca gac ttc agc agc cag ccg gct gtg    1666
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Met Lys Asn Thr Thr Lys Lys Pro Asp Phe Ser Ser Gln Pro Ala Val
                405                 410                 415

cac aag ctg acc aaa cgt atc ccc ctg cgg aga cag gta aca gtt tcg    1714
His Lys Leu Thr Lys Arg Ile Pro Leu Arg Arg Gln Val Thr Val Ser
            420                 425                 430

gct gag tcc agc tcc tcc atg aac tcc aac acc ccg ctg gtg agg ata    1762
Ala Glu Ser Ser Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg Ile
        435                 440                 445

aca aca cgc ctc tct tca acg gca gac acc ccc atg ctg gca ggg gtc    1810
Thr Thr Arg Leu Ser Ser Thr Ala Asp Thr Pro Met Leu Ala Gly Val
    450                 455                 460

tcc gag tat gaa ctt cca gag gac cca aaa tgg gag ttt cca aga gat    1858
Ser Glu Tyr Glu Leu Pro Glu Asp Pro Lys Trp Glu Phe Pro Arg Asp
465                 470                 475                 480

aag ctg aca ctg ggc aag ccc ctg gga gaa ggt tgc ttt ggg caa gtg    1906
Lys Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln Val
                485                 490                 495

gtc atg gcg gaa gca gtg gga att gac aaa gac aag ccc aag gag gcg    1954
Val Met Ala Glu Ala Val Gly Ile Asp Lys Asp Lys Pro Lys Glu Ala
            500                 505                 510

gtc acc gtg gcc gtg aag atg ttg aaa gat gat gcc aca gag aaa gac    2002
Val Thr Val Ala Val Lys Met Leu Lys Asp Asp Ala Thr Glu Lys Asp
        515                 520                 525

ctt tct gat ctg gtg tca gag atg gag atg atg aag atg att ggg aaa    2050
Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys Met Ile Gly Lys
    530                 535                 540

cac aag aat atc ata aat ctt ctt gga gcc tgc aca cag gat ggg cct    2098
His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys Thr Gln Asp Gly Pro
545                 550                 555                 560

ctc tat gtc ata gtt gag tat gcc tct aaa ggc aac ctc cga gaa tac    2146
Leu Tyr Val Ile Val Glu Tyr Ala Ser Lys Gly Asn Leu Arg Glu Tyr
                565                 570                 575

ctc cga gcc cgg agg cca ccc ggg atg gag tac tcc tat gac att aac    2194
```

```
Leu Arg Ala Arg Arg Pro Pro Gly Met Glu Tyr Ser Tyr Asp Ile Asn
            580                 585                 590

cgt gtt cct gag gag cag atg acc ttc aag gac ttg gtg tca tgc acc    2242
Arg Val Pro Glu Glu Gln Met Thr Phe Lys Asp Leu Val Ser Cys Thr
        595                 600                 605

tac cag ctg gcc aga cgg atg gag tac ttg gct tcc caa aaa tgt att    2290
Tyr Gln Leu Ala Arg Arg Met Glu Tyr Leu Ala Ser Gln Lys Cys Ile
    610                 615                 620

cat cga gat tta gca gcc aga aat gtt ttg gta aca gaa aac aat gtg    2338
His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asn Asn Val
625                 630                 635                 640

atg aaa ata gca gac ttt gga ctc gcc aga gat atc aac aat ata gac    2386
Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Ile Asn Asn Ile Asp
                645                 650                 655

tat tac aaa aag acc acc aat ggg cgg ctt cca gtc aag tgg atg gct    2434
Tyr Tyr Lys Lys Thr Thr Asn Gly Arg Leu Pro Val Lys Trp Met Ala
            660                 665                 670

cca gaa gcc ctg ttt gat aga gta tac act cat cag agt gat gtc tgg    2482
Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr His Gln Ser Asp Val Trp
        675                 680                 685

tcc ttc ggg gtg tta atg tgg gag atc ttc act tta ggg ggc tcg ccc    2530
Ser Phe Gly Val Leu Met Trp Glu Ile Phe Thr Leu Gly Gly Ser Pro
    690                 695                 700

tac cca ggg att ccc gtg gag gaa ctt ttt aag ctg ctg aag gaa gga    2578
Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys Leu Leu Lys Glu Gly
705                 710                 715                 720

cac aga atg gat aag cca gcc aac tgc acc aac gaa ctg tac atg atg    2626
His Arg Met Asp Lys Pro Ala Asn Cys Thr Asn Glu Leu Tyr Met Met
                725                 730                 735

atg agg gac tgt tgg cat gca gtg ccc tcc cag aga cca acg ttc aag    2674
Met Arg Asp Cys Trp His Ala Val Pro Ser Gln Arg Pro Thr Phe Lys
            740                 745                 750

cag ttg gta gaa gac ttg gat cga att ctc act ctc aca acc aat gag    2722
```

```
Gln Leu Val Glu Asp Leu Asp Arg Ile Leu Thr Leu Thr Thr Asn Glu
        755                 760                 765

cga att ctc act ctc aca acc aat gag aac ttc cag agc acc tca gga    2770
Arg Ile Leu Thr Leu Thr Thr Asn Glu Asn Phe Gln Ser Thr Ser Gly
    770                 775                 780

aga gag ggc acg gag att cat gct ctt caa tgc ctc aga tcg gaa gta    2818
Arg Glu Gly Thr Glu Ile His Ala Leu Gln Cys Leu Arg Ser Glu Val
785                 790                 795                 800

aca cct gcc att tcc tgt gag agc cca ttg gct gac act ggt tcc aag    2866
Thr Pro Ala Ile Ser Cys Glu Ser Pro Leu Ala Asp Thr Gly Ser Lys
                805                 810                 815

gtc cca aac taa ctacatggga agcaggaagc accaagaagc tgatggagaa       2918
Val Pro Asn

tcgggttttg gaagcaatag tga                                        2941
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<213> Homo sapiens

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<222> (419)...(2734)

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caaatccgag ggcagcccgc gggcgtcatg gcgctcctcc gcagcctggg gtacgcgtga 120

agcccgggag gcttggcgcc ggcgaagacc caaggaccac tcttctgcgt ttggagttgc 180

tccccgcaac cccgggctcg tcgctttctc catcccgacc cacgcggggc cggggacaac 240

acaggtcgcg gaggagcgtt gccattcaag tgactgcagc agcagcgcag cgcctcggtt 300

cctgagccca ccgcagctga aggcattgcg cgtagtccat gcccgtagag gaagtgtgca 360

gatgggatta acgtccacat ggagatatgg aagaggaccg gggattggta ccgtaacc 418

atg gtc agc tgg ggt cgt ttc atc tgc ctg gtc gtg gtc acc atg gca 466
Met Val Ser Trp Gly Arg Phe Ile Cys Leu Val Val Val Thr Met Ala
1 5 10 15

acc ttg tcc ctg gcc cgg ccc tcc ttc agt tta gtt gag gat acc aca 514
Thr Leu Ser Leu Ala Arg Pro Ser Phe Ser Leu Val Glu Asp Thr Thr
20 25 30

tta gag cca gaa gag cca cca acc aaa tac caa atc tct caa cca gaa 562
Leu Glu Pro Glu Glu Pro Pro Thr Lys Tyr Gln Ile Ser Gln Pro Glu
35 40 45

gtg tac gtg gct gcg cca ggg gag tcg cta gag gtg cgc tgc ctg ttg 610
Val Tyr Val Ala Ala Pro Gly Glu Ser Leu Glu Val Arg Cys Leu Leu
50 55 60

aaa gat gcc gcc gtg atc agt tgg act aag gat ggg gtg cac ttg ggg 658
Lys Asp Ala Ala Val Ile Ser Trp Thr Lys Asp Gly Val His Leu Gly
65 70 75 80

ccc aac aat agg aca gtg ctt att ggg gag tac ttg cag ata aag ggc 706
Pro Asn Asn Arg Thr Val Leu Ile Gly Glu Tyr Leu Gln Ile Lys Gly
85 90 95

gcc aca cct aga gac tcc ggc ctc tat gct tgt act gcc agt agg act 754
Ala Thr Pro Arg Asp Ser Gly Leu Tyr Ala Cys Thr Ala Ser Arg Thr
100 105 110

gta gac agt gaa act tgg tac ttc atg gtg aat gtc aca gat gcc atc 802
Val Asp Ser Glu Thr Trp Tyr Phe Met Val Asn Val Thr Asp Ala Ile
115 120 125

tca tcc gga gat gat gag gat gac acc gat ggt gcg gaa gat ttt gtc 850
Ser Ser Gly Asp Asp Glu Asp Asp Thr Asp Gly Ala Glu Asp Phe Val
130 135 140

agt gag aac agt aac aac aag aga gca cca tac tgg acc aac aca gaa 898
Ser Glu Asn Ser Asn Asn Lys Arg Ala Pro Tyr Trp Thr Asn Thr Glu

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145                 150                 155                 160

aag atg gaa aag cgg ctc cat gct gtg cct gcg gcc aac act gtc aag      946
Lys Met Glu Lys Arg Leu His Ala Val Pro Ala Ala Asn Thr Val Lys
                165                 170                 175

ttt cgc tgc cca gcc ggg ggg aac cca atg cca acc atg cgg tgg ctg      994
Phe Arg Cys Pro Ala Gly Gly Asn Pro Met Pro Thr Met Arg Trp Leu
            180                 185                 190

aaa aac ggg aag gag ttt aag cag gag cat cgc att gga ggc tac aag     1042
Lys Asn Gly Lys Glu Phe Lys Gln Glu His Arg Ile Gly Gly Tyr Lys
        195                 200                 205

gta cga aac cag cac tgg agc ctc att atg gaa agt gtg gtc cca tct     1090
Val Arg Asn Gln His Trp Ser Leu Ile Met Glu Ser Val Val Pro Ser
    210                 215                 220

gac aag gga aat tat acc tgt gta gtg gag aat gaa tac ggg tcc atc     1138
Asp Lys Gly Asn Tyr Thr Cys Val Val Glu Asn Glu Tyr Gly Ser Ile
225                 230                 235                 240

aat cac acg tac cac ctg gat gtt gtg gag cga tcg cct cac cgg ccc     1186
Asn His Thr Tyr His Leu Asp Val Val Glu Arg Ser Pro His Arg Pro
                245                 250                 255

atc ctc caa gcc gga ctg ccg gca aat gcc tcc aca gtg gtc gga gga     1234
Ile Leu Gln Ala Gly Leu Pro Ala Asn Ala Ser Thr Val Val Gly Gly
            260                 265                 270

gac gta gag ttt gtc tgc aag gtt tac agt gat gcc cag ccc cac atc     1282
Asp Val Glu Phe Val Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile
        275                 280                 285

cag tgg atc aag cac gtg gaa aag aac ggc agt aaa tac ggg ccc gac     1330
Gln Trp Ile Lys His Val Glu Lys Asn Gly Ser Lys Tyr Gly Pro Asp
    290                 295                 300

ggg ctg ccc tac ctc aag gtt ctc aag cac tcg ggg ata aat agt tcc     1378
Gly Leu Pro Tyr Leu Lys Val Leu Lys His Ser Gly Ile Asn Ser Ser
305                 310                 315                 320

aat gca gaa gtg ctg gct ctg ttc aat gtg acc gag gcg gat gct ggg     1426
Asn Ala Glu Val Leu Ala Leu Phe Asn Val Thr Glu Ala Asp Ala Gly
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                325                 330                 335

gaa tat ata tgt aag gtc tcc aat tat ata ggg cag gcc aac cag tct    1474
Glu Tyr Ile Cys Lys Val Ser Asn Tyr Ile Gly Gln Ala Asn Gln Ser
            340                 345                 350

gcc tgg ctc act gtc ctg cca aaa cag caa gcg cct gga aga gaa aag    1522
Ala Trp Leu Thr Val Leu Pro Lys Gln Gln Ala Pro Gly Arg Glu Lys
        355                 360                 365

gag att aca gct tcc cca gac tac ctg gag ata gcc att tac tgc ata    1570
Glu Ile Thr Ala Ser Pro Asp Tyr Leu Glu Ile Ala Ile Tyr Cys Ile
    370                 375                 380

ggg gtc ttc tta atc gcc tgt atg gtg gta aca gtc atc ctg tgc cga    1618
Gly Val Phe Leu Ile Ala Cys Met Val Val Thr Val Ile Leu Cys Arg
385                 390                 395                 400

atg aag aac acg acc aag aag cca gac ttc agc agc cag ccg gct gtg    1666
Met Lys Asn Thr Thr Lys Lys Pro Asp Phe Ser Ser Gln Pro Ala Val
                405                 410                 415

cac aag ctg acc aaa cgt atc ccc ctg cgg aga cag gta aca gtt tcg    1714
His Lys Leu Thr Lys Arg Ile Pro Leu Arg Arg Gln Val Thr Val Ser
            420                 425                 430

gct gag tcc agc tcc tcc atg aac tcc aac acc ccg ctg gtg agg ata    1762
Ala Glu Ser Ser Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg Ile
        435                 440                 445

aca aca cgc ctc tct tca acg gca gac acc ccc atg ctg gca ggg gtc    1810
Thr Thr Arg Leu Ser Ser Thr Ala Asp Thr Pro Met Leu Ala Gly Val
    450                 455                 460

tcc gag tat gaa ctt cca gag gac cca aaa tgg gag ttt cca aga gat    1858
Ser Glu Tyr Glu Leu Pro Glu Asp Pro Lys Trp Glu Phe Pro Arg Asp
465                 470                 475                 480

aag ctg aca ctg ggc aag ccc ctg gga gaa ggt tgc ttt ggg caa gtg    1906
Lys Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln Val
                485                 490                 495

gtc atg gcg gaa gca gtg gga att gac aaa gac aag ccc aag gag gcg    1954
Val Met Ala Glu Ala Val Gly Ile Asp Lys Asp Lys Pro Lys Glu Ala
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            500                 505                 510

gtc acc gtg gcc gtg aag atg ttg aaa gat gat gcc aca gag aaa gac    2002
Val Thr Val Ala Val Lys Met Leu Lys Asp Asp Ala Thr Glu Lys Asp
        515                 520                 525

ctt tct gat ctg gtg tca gag atg gag atg atg aag atg att ggg aaa    2050
Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys Met Ile Gly Lys
    530                 535                 540

cac aag aat atc ata aat ctt ctt gga gcc tgc aca cag gat ggg cct    2098
His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys Thr Gln Asp Gly Pro
545                 550                 555                 560

ctc tat gtc ata gtt gag tat gcc tct aaa ggc aac ctc cga gaa tac    2146
Leu Tyr Val Ile Val Glu Tyr Ala Ser Lys Gly Asn Leu Arg Glu Tyr
                565                 570                 575

ctc cga gcc cgg agg cca ccc ggg atg gag tac tcc tat gac att aac    2194
Leu Arg Ala Arg Arg Pro Pro Gly Met Glu Tyr Ser Tyr Asp Ile Asn
            580                 585                 590

cgt gtt cct gag gag cag atg acc ttc aag gac ttg gtg tca tgc acc    2242
Arg Val Pro Glu Glu Gln Met Thr Phe Lys Asp Leu Val Ser Cys Thr
        595                 600                 605

tac cag ctg gcc aga cgg atg gag tac ttg gct tcc caa aaa tgt att    2290
Tyr Gln Leu Ala Arg Arg Met Glu Tyr Leu Ala Ser Gln Lys Cys Ile
    610                 615                 620

cat cga gat tta gca gcc aga aat gtt ttg gta aca gaa aac aat gtg    2338
His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asn Asn Val
625                 630                 635                 640

atg aaa ata gca gac ttt gga ctc gcc aga gat atc aac aat ata gac    2386
Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Ile Asn Asn Ile Asp
                645                 650                 655

tat tac aaa aag acc acc aat ggg cgg ctt cca gtc aag tgg atg gct    2434
Tyr Tyr Lys Lys Thr Thr Asn Gly Arg Leu Pro Val Lys Trp Met Ala
            660                 665                 670

cca gaa gcc ctg ttt gat aga gta tac act cat cag agt gat gtc tgg    2482
Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr His Gln Ser Asp Val Trp
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        675                 680                 685

tcc ttc ggg gtg tta atg tgg gag atc ttc act tta ggg ggc tcg ccc    2530
Ser Phe Gly Val Leu Met Trp Glu Ile Phe Thr Leu Gly Gly Ser Pro
    690                 695                 700

tac cca ggg att ccc gtg gag gaa ctt ttt aag ctg ctg aag gaa gga    2578
Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys Leu Leu Lys Glu Gly
705                 710                 715                 720

cac aga atg gat aag cca gcc aac tgc acc aac gaa ctg tac atg atg    2626
His Arg Met Asp Lys Pro Ala Asn Cys Thr Asn Glu Leu Tyr Met Met
                725                 730                 735

atg agg gac tgt tgg cat gca gtg ccc tcc cag aga cca acg ttc aag    2674
Met Arg Asp Cys Trp His Ala Val Pro Ser Gln Arg Pro Thr Phe Lys
            740                 745                 750

cag ttg gta gaa gac ttg gat cga att ctc act ctc aca acc aat gag    2722
Gln Leu Val Glu Asp Leu Asp Arg Ile Leu Thr Leu Thr Thr Asn Glu
        755                 760                 765

cct cta tcc tga agagcgttgg accctggagc tgctggccac atcttgatct        2774
Pro Leu Ser
    770

gccatatgtg gtccaagaat gaagtcaaca cgaaggagaa tgaaggtgct gagggataaa  2834

gttattgaca ttctaggagc tcctggatca aacc                              2868
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caaatccgag ggcagcccgc gggcgtcatg gcgctcctcc gcagcctggg gtacgcgtga 120

agcccgggag gcttggcgcc ggcgaagacc caaggaccac tcttctgcgt ttggagttgc 180

tccccgcaac cccgggctcg tcgctttctc catcccgacc cacgcggggc cggggacaac 240

acaggtcgcg gaggagcgtt gccattcaag tgactgcagc agcagcgcag cgcctcggtt 300

cctgagccca ccgcagctga aggcattgcg cgtagtccat gcccgtagag gaagtgtgca 360

gatgggatta acgtccacat ggagatatgg aagaggaccg gggattggta ccgtaacc 418

atg gtc agc tgg ggt cgt ttc atc tgc ctg gtc gtg gtc acc atg gca 466
Met Val Ser Trp Gly Arg Phe Ile Cys Leu Val Val Val Thr Met Ala
1 5 10 15

acc ttg tcc ctg gcc cgg ccc tcc ttc agt tta gtt gag gat acc aca 514
Thr Leu Ser Leu Ala Arg Pro Ser Phe Ser Leu Val Glu Asp Thr Thr
20 25 30

tta gag cca gaa gag cca cca acc aaa tac caa atc tct caa cca gaa 562
Leu Glu Pro Glu Glu Pro Pro Thr Lys Tyr Gln Ile Ser Gln Pro Glu
35 40 45

gtg tac gtg gct gcg cca ggg gag tcg cta gag gtg cgc tgc ctg ttg 610
Val Tyr Val Ala Ala Pro Gly Glu Ser Leu Glu Val Arg Cys Leu Leu
50 55 60

aaa gat gcc gcc gtg atc agt tgg act aag gat ggg gtg cac ttg ggg 658
Lys Asp Ala Ala Val Ile Ser Trp Thr Lys Asp Gly Val His Leu Gly
65 70 75 80

ccc aac aat agg aca gtg ctt att ggg gag tac ttg cag ata aag ggc 706
Pro Asn Asn Arg Thr Val Leu Ile Gly Glu Tyr Leu Gln Ile Lys Gly
85 90 95

gcc aca cct aga gac tcc ggc ctc tat gct tgt act gcc agt agg act 754
Ala Thr Pro Arg Asp Ser Gly Leu Tyr Ala Cys Thr Ala Ser Arg Thr
100 105 110

gta gac agt gaa act tgg tac ttc atg gtg aat gtc aca gat gcc atc 802

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Val Asp Ser Glu Thr Trp Tyr Phe Met Val Asn Val Thr Asp Ala Ile
        115                 120                 125

tca tcc gga gat gat gag gat gac acc gat ggt gcg gaa gat ttt gtc     850
Ser Ser Gly Asp Asp Glu Asp Asp Thr Asp Gly Ala Glu Asp Phe Val
    130                 135                 140

agt gag aac agt aac aac aag aga gca cca tac tgg acc aac aca gaa     898
Ser Glu Asn Ser Asn Asn Lys Arg Ala Pro Tyr Trp Thr Asn Thr Glu
145                 150                 155                 160

aag atg gaa aag cgg ctc cat gct gtg cct gcg gcc aac act gtc aag     946
Lys Met Glu Lys Arg Leu His Ala Val Pro Ala Ala Asn Thr Val Lys
                165                 170                 175

ttt cgc tgc cca gcc ggg ggg aac cca atg cca acc atg cgg tgg ctg     994
Phe Arg Cys Pro Ala Gly Gly Asn Pro Met Pro Thr Met Arg Trp Leu
            180                 185                 190

aaa aac ggg aag gag ttt aag cag gag cat cgc att gga ggc tac aag    1042
Lys Asn Gly Lys Glu Phe Lys Gln Glu His Arg Ile Gly Gly Tyr Lys
        195                 200                 205

gta cga aac cag cac tgg agc ctc att atg gaa agt gtg gtc cca tct    1090
Val Arg Asn Gln His Trp Ser Leu Ile Met Glu Ser Val Val Pro Ser
    210                 215                 220

gac aag gga aat tat acc tgt gta gtg gag aat gaa tac ggg tcc atc    1138
Asp Lys Gly Asn Tyr Thr Cys Val Val Glu Asn Glu Tyr Gly Ser Ile
225                 230                 235                 240

aat cac acg tac cac ctg gat gtt gtg gag cga tcg cct cac cgg ccc    1186
Asn His Thr Tyr His Leu Asp Val Val Glu Arg Ser Pro His Arg Pro
                245                 250                 255

atc ctc caa gcc gga ctg ccg gca aat gcc tcc aca gtg gtc gga gga    1234
Ile Leu Gln Ala Gly Leu Pro Ala Asn Ala Ser Thr Val Val Gly Gly
            260                 265                 270

gac gta gag ttt gtc tgc aag gtt tac agt gat gcc cag ccc cac atc    1282
Asp Val Glu Phe Val Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile
        275                 280                 285

cag tgg atc aag cac gtg gaa aag aac ggc agt aaa tac ggg ccc gac    1330
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Gln Trp Ile Lys His Val Glu Lys Asn Gly Ser Lys Tyr Gly Pro Asp
    290                 295                 300

ggg ctg ccc tac ctc aag gtt ctc aag cac tcg ggg ata aat agt tcc    1378
Gly Leu Pro Tyr Leu Lys Val Leu Lys His Ser Gly Ile Asn Ser Ser
305                 310                 315                 320

aat gca gaa gtg ctg gct ctg ttc aat gtg acc gag gcg gat gct ggg    1426
Asn Ala Glu Val Leu Ala Leu Phe Asn Val Thr Glu Ala Asp Ala Gly
                325                 330                 335

gaa tat ata tgt aag gtc tcc aat tat ata ggg cag gcc aac cag tct    1474
Glu Tyr Ile Cys Lys Val Ser Asn Tyr Ile Gly Gln Ala Asn Gln Ser
            340                 345                 350

gcc tgg ctc act gtc ctg cca aaa cag caa gcg cct gga aga gaa aag    1522
Ala Trp Leu Thr Val Leu Pro Lys Gln Gln Ala Pro Gly Arg Glu Lys
        355                 360                 365

gag att aca gct tcc cca gac tac ctg gag ata gcc att tac tgc ata    1570
Glu Ile Thr Ala Ser Pro Asp Tyr Leu Glu Ile Ala Ile Tyr Cys Ile
    370                 375                 380

ggg gtc ttc tta atc gcc tgt atg gtg gta aca gtc atc ctg tgc cga    1618
Gly Val Phe Leu Ile Ala Cys Met Val Val Thr Val Ile Leu Cys Arg
385                 390                 395                 400

atg aag aac acg acc aag aag cca gac ttc agc agc cag ccg gct gtg    1666
Met Lys Asn Thr Thr Lys Lys Pro Asp Phe Ser Ser Gln Pro Ala Val
                405                 410                 415

cac aag ctg acc aaa cgt atc ccc ctg cgg aga cag gta aca gtt tcg    1714
His Lys Leu Thr Lys Arg Ile Pro Leu Arg Arg Gln Val Thr Val Ser
            420                 425                 430

gct gag tcc agc tcc tcc atg aac tcc aac acc ccg ctg gtg agg ata    1762
Ala Glu Ser Ser Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg Ile
        435                 440                 445

aca aca cgc ctc tct tca acg gca gac acc ccc atg ctg gca ggg gtc    1810
Thr Thr Arg Leu Ser Ser Thr Ala Asp Thr Pro Met Leu Ala Gly Val
    450                 455                 460

tcc gag tat gaa ctt cca gag gac cca aaa tgg gag ttt cca aga gat    1858
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Ser Glu Tyr Glu Leu Pro Glu Asp Pro Lys Trp Glu Phe Pro Arg Asp
465                 470                 475                 480

aag ctg aca ctg ggc aag ccc ctg gga gaa ggt tgc ttt ggg caa gtg    1906
Lys Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln Val
                485                 490                 495

gtc atg gcg gaa gca gtg gga att gac aaa gac aag ccc aag gag gcg    1954
Val Met Ala Glu Ala Val Gly Ile Asp Lys Asp Lys Pro Lys Glu Ala
            500                 505                 510

gtc acc gtg gcc gtg aag atg ttg aaa gat gat gcc aca gag aaa gac    2002
Val Thr Val Ala Val Lys Met Leu Lys Asp Asp Ala Thr Glu Lys Asp
        515                 520                 525

ctt tct gat ctg gtg tca gag atg gag atg atg aag atg att ggg aaa    2050
Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys Met Ile Gly Lys
    530                 535                 540

cac aag aat atc ata aat ctt ctt gga gcc tgc aca cag gat ggg cct    2098
His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys Thr Gln Asp Gly Pro
545                 550                 555                 560

ctc tat gtc ata gtt gag tat gcc tct aaa ggc aac ctc cga gaa tac    2146
Leu Tyr Val Ile Val Glu Tyr Ala Ser Lys Gly Asn Leu Arg Glu Tyr
                565                 570                 575

ctc cga gcc cgg agg cca ccc ggg atg gag tac tcc tat gac att aac    2194
Leu Arg Ala Arg Arg Pro Pro Gly Met Glu Tyr Ser Tyr Asp Ile Asn
            580                 585                 590

cgt gtt cct gag gag cag atg acc ttc aag gac ttg gtg tca tgc acc    2242
Arg Val Pro Glu Glu Gln Met Thr Phe Lys Asp Leu Val Ser Cys Thr
        595                 600                 605

tac cag ctg gcc aga cgg atg gag tac ttg gct tcc caa aaa tgt att    2290
Tyr Gln Leu Ala Arg Arg Met Glu Tyr Leu Ala Ser Gln Lys Cys Ile
    610                 615                 620

cat cga gat tta gca gcc aga aat gtt ttg gta aca gaa aac aat gtg    2338
His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asn Asn Val
625                 630                 635                 640

atg aaa ata gca gac ttt gga ctc gcc aga gat atc aac aat ata gac    2386
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Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Ile Asn Asn Ile Asp
                645                 650                 655

tat tac aaa aag acc acc aat ggg cgg ctt cca gtc aag tgg atg gct    2434
Tyr Tyr Lys Lys Thr Thr Asn Gly Arg Leu Pro Val Lys Trp Met Ala
            660                 665                 670

cca gaa gcc ctg ttt gat aga gta tac act cat cag agt gat gtc tgg    2482
Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr His Gln Ser Asp Val Trp
        675                 680                 685

tcc ttc ggg gtg tta atg tgg gag atc ttc act tta ggg ggc tcg ccc    2530
Ser Phe Gly Val Leu Met Trp Glu Ile Phe Thr Leu Gly Gly Ser Pro
    690                 695                 700

tac cca ggg att ccc gtg gag gaa ctt ttt aag ctg ctg aag gaa gga    2578
Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys Leu Leu Lys Glu Gly
705                 710                 715                 720

cac aga atg gat aag cca gcc aac tgc acc aac gaa ctg tac atg atg    2626
His Arg Met Asp Lys Pro Ala Asn Cys Thr Asn Glu Leu Tyr Met Met
                725                 730                 735

atg agg gac tgt tgg cat gca gtg ccc tcc cag aga cca acg ttc aag    2674
Met Arg Asp Cys Trp His Ala Val Pro Ser Gln Arg Pro Thr Phe Lys
            740                 745                 750

cag ttg gta gaa gac ttg gat cga att ctc act ctc aca acc aat gag    2722
Gln Leu Val Glu Asp Leu Asp Arg Ile Leu Thr Leu Thr Thr Asn Glu
        755                 760                 765

cgg tac aag ctg ctt ccc tgt cct gac aag cac aat aaa agg tgc aaa    2770
Arg Tyr Lys Leu Leu Pro Cys Pro Asp Lys His Asn Lys Arg Cys Lys
    770                 775                 780

cct gag gaa cgt ggg gac ctc aca gag gca ggc gca gcc ggc tca tcg    2818
Pro Glu Glu Arg Gly Asp Leu Thr Glu Ala Gly Ala Ala Gly Ser Ser
785                 790                 795                 800

aga tgt gtg gac agc aga aag cga gtg agg caa gag aaa atc agc aca    2866
Arg Cys Val Asp Ser Arg Lys Arg Val Arg Gln Glu Lys Ile Ser Thr
                805                 810                 815

ggg taa acatcagaga tcaaagggca gcagctggag tcactgggtg gagaagcagt     2922
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Gly

g 2923

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<211> 2826
<212> DNA
<213> Homo sapiens

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<222> (419)...(2725)

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caaatccgag ggcagcccgc gggcgtcatg gcgctcctcc gcagcctggg gtacgcgtga 120

agcccgggag gcttggcgcc ggcgaagacc caaggaccac tcttctgcgt ttggagttgc 180

tccccgcaac cccgggctcg tcgctttctc catcccgacc cacgcggggc cggggacaac 240

acaggtcgcg gaggagcgtt gccattcaag tgactgcagc agcagcgcag cgcctcggtt 300

cctgagccca ccgcagctga aggcattgcg cgtagtccat gcccgtagag gaagtgtgca 360

gatgggatta acgtccacat ggagatatgg aagaggaccg gggattggta ccgtaacc 418

atg gtc agc tgg ggt cgt ttc atc tgc ctg gtc gtg gtc acc atg gca 466
Met Val Ser Trp Gly Arg Phe Ile Cys Leu Val Val Val Thr Met Ala
1 5 10 15

acc ttg tcc ctg gcc cgg ccc tcc ttc agt tta gtt gag gat acc aca 514
Thr Leu Ser Leu Ala Arg Pro Ser Phe Ser Leu Val Glu Asp Thr Thr
20 25 30

tta gag cca gaa gag cca cca acc aaa tac caa atc tct caa cca gaa 562
Leu Glu Pro Glu Glu Pro Pro Thr Lys Tyr Gln Ile Ser Gln Pro Glu

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         35                  40                  45

gtg tac gtg gct gcg cca ggg gag tcg cta gag gtg cgc tgc ctg ttg     610
Val Tyr Val Ala Ala Pro Gly Glu Ser Leu Glu Val Arg Cys Leu Leu
     50                  55                  60

aaa gat gcc gcc gtg atc agt tgg act aag gat ggg gtg cac ttg ggg     658
Lys Asp Ala Ala Val Ile Ser Trp Thr Lys Asp Gly Val His Leu Gly
 65                  70                  75                  80

ccc aac aat agg aca gtg ctt att ggg gag tac ttg cag ata aag ggc     706
Pro Asn Asn Arg Thr Val Leu Ile Gly Glu Tyr Leu Gln Ile Lys Gly
                 85                  90                  95

gcc aca cct aga gac tcc ggc ctc tat gct tgt act gcc agt agg act     754
Ala Thr Pro Arg Asp Ser Gly Leu Tyr Ala Cys Thr Ala Ser Arg Thr
            100                 105                 110

gta gac agt gaa act tgg tac ttc atg gtg aat gtc aca gat gcc atc     802
Val Asp Ser Glu Thr Trp Tyr Phe Met Val Asn Val Thr Asp Ala Ile
        115                 120                 125

tca tcc gga gat gat gag gat gac acc gat ggt gcg gaa gat ttt gtc     850
Ser Ser Gly Asp Asp Glu Asp Asp Thr Asp Gly Ala Glu Asp Phe Val
    130                 135                 140

agt gag aac agt aac aac aag aga gca cca tac tgg acc aac aca gaa     898
Ser Glu Asn Ser Asn Asn Lys Arg Ala Pro Tyr Trp Thr Asn Thr Glu
145                 150                 155                 160

aag atg gaa aag cgg ctc cat gct gtg cct gcg gcc aac act gtc aag     946
Lys Met Glu Lys Arg Leu His Ala Val Pro Ala Ala Asn Thr Val Lys
                165                 170                 175

ttt cgc tgc cca gcc ggg ggg aac cca atg cca acc atg cgg tgg ctg     994
Phe Arg Cys Pro Ala Gly Gly Asn Pro Met Pro Thr Met Arg Trp Leu
            180                 185                 190

aaa aac ggg aag gag ttt aag cag gag cat cgc att gga ggc tac aag    1042
Lys Asn Gly Lys Glu Phe Lys Gln Glu His Arg Ile Gly Gly Tyr Lys
        195                 200                 205

gta cga aac cag cac tgg agc ctc att atg gaa agt gtg gtc cca tct    1090
Val Arg Asn Gln His Trp Ser Leu Ile Met Glu Ser Val Val Pro Ser
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    210                 215                 220

gac aag gga aat tat acc tgt gta gtg gag aat gaa tac ggg tcc atc    1138
Asp Lys Gly Asn Tyr Thr Cys Val Val Glu Asn Glu Tyr Gly Ser Ile
225                 230                 235                 240

aat cac acg tac cac ctg gat gtt gtg gag cga tcg cct cac cgg ccc    1186
Asn His Thr Tyr His Leu Asp Val Val Glu Arg Ser Pro His Arg Pro
                245                 250                 255

atc ctc caa gcc gga ctg ccg gca aat gcc tcc aca gtg gtc gga gga    1234
Ile Leu Gln Ala Gly Leu Pro Ala Asn Ala Ser Thr Val Val Gly Gly
            260                 265                 270

gac gta gag ttt gtc tgc aag gtt tac agt gat gcc cag ccc cac atc    1282
Asp Val Glu Phe Val Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile
        275                 280                 285

cag tgg atc aag cac gtg gaa aag aac ggc agt aaa tac ggg ccc gac    1330
Gln Trp Ile Lys His Val Glu Lys Asn Gly Ser Lys Tyr Gly Pro Asp
    290                 295                 300

ggg ctg ccc tac ctc aag gtt ctc aag cac tcg ggg ata aat agt tcc    1378
Gly Leu Pro Tyr Leu Lys Val Leu Lys His Ser Gly Ile Asn Ser Ser
305                 310                 315                 320

aat gca gaa gtg ctg gct ctg ttc aat gtg acc gag gcg gat gct ggg    1426
Asn Ala Glu Val Leu Ala Leu Phe Asn Val Thr Glu Ala Asp Ala Gly
                325                 330                 335

gaa tat ata tgt aag gtc tcc aat tat ata ggg cag gcc aac cag tct    1474
Glu Tyr Ile Cys Lys Val Ser Asn Tyr Ile Gly Gln Ala Asn Gln Ser
            340                 345                 350

gcc tgg ctc act gtc ctg cca aaa cag caa gcg cct gga aga gaa aag    1522
Ala Trp Leu Thr Val Leu Pro Lys Gln Gln Ala Pro Gly Arg Glu Lys
        355                 360                 365

gag att aca gct tcc cca gac tac ctg gag ata gcc att tac tgc ata    1570
Glu Ile Thr Ala Ser Pro Asp Tyr Leu Glu Ile Ala Ile Tyr Cys Ile
    370                 375                 380

ggg gtc ttc tta atc gcc tgt atg gtg gta aca gtc atc ctg tgc cga    1618
Gly Val Phe Leu Ile Ala Cys Met Val Val Thr Val Ile Leu Cys Arg
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385                 390                 395                 400

atg aag aac acg acc aag aag cca gac ttc agc agc cag ccg gct gtg    1666
Met Lys Asn Thr Thr Lys Lys Pro Asp Phe Ser Ser Gln Pro Ala Val
                405                 410                 415

cac aag ctg acc aaa cgt atc ccc ctg cgg aga cag gta aca gtt tcg    1714
His Lys Leu Thr Lys Arg Ile Pro Leu Arg Arg Gln Val Thr Val Ser
            420                 425                 430

gct gag tcc agc tcc tcc atg aac tcc aac acc ccg ctg gtg agg ata    1762
Ala Glu Ser Ser Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg Ile
        435                 440                 445

aca aca cgc ctc tct tca acg gca gac acc ccc atg ctg gca ggg gtc    1810
Thr Thr Arg Leu Ser Ser Thr Ala Asp Thr Pro Met Leu Ala Gly Val
    450                 455                 460

tcc gag tat gaa ctt cca gag gac cca aaa tgg gag ttt cca aga gat    1858
Ser Glu Tyr Glu Leu Pro Glu Asp Pro Lys Trp Glu Phe Pro Arg Asp
465                 470                 475                 480

aag ctg aca ctg ggc aag ccc ctg gga gaa ggt tgc ttt ggg caa gtg    1906
Lys Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln Val
                485                 490                 495

gtc atg gcg gaa gca gtg gga att gac aaa gac aag ccc aag gag gcg    1954
Val Met Ala Glu Ala Val Gly Ile Asp Lys Asp Lys Pro Lys Glu Ala
            500                 505                 510

gtc acc gtg gcc gtg aag atg ttg aaa gat gat gcc aca gag aaa gac    2002
Val Thr Val Ala Val Lys Met Leu Lys Asp Asp Ala Thr Glu Lys Asp
        515                 520                 525

ctt tct gat ctg gtg tca gag atg gag atg atg aag atg att ggg aaa    2050
Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys Met Ile Gly Lys
    530                 535                 540

cac aag aat atc ata aat ctt ctt gga gcc tgc aca cag gat ggg cct    2098
His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys Thr Gln Asp Gly Pro
545                 550                 555                 560

ctc tat gtc ata gtt gag tat gcc tct aaa ggc aac ctc cga gaa tac    2146
Leu Tyr Val Ile Val Glu Tyr Ala Ser Lys Gly Asn Leu Arg Glu Tyr
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                565                 570                 575

ctc cga gcc cgg agg cca ccc ggg atg gag tac tcc tat gac att aac    2194
Leu Arg Ala Arg Arg Pro Pro Gly Met Glu Tyr Ser Tyr Asp Ile Asn
            580                 585                 590

cgt gtt cct gag gag cag atg acc ttc aag gac ttg gtg tca tgc acc    2242
Arg Val Pro Glu Glu Gln Met Thr Phe Lys Asp Leu Val Ser Cys Thr
        595                 600                 605

tac cag ctg gcc aga cgg atg gag tac ttg gct tcc caa aaa tgt att    2290
Tyr Gln Leu Ala Arg Arg Met Glu Tyr Leu Ala Ser Gln Lys Cys Ile
    610                 615                 620

cat cga gat tta gca gcc aga aat gtt ttg gta aca gaa aac aat gtg    2338
His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asn Asn Val
625                 630                 635                 640

atg aaa ata gca gac ttt gga ctc gcc aga gat atc aac aat ata gac    2386
Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Ile Asn Asn Ile Asp
                645                 650                 655

tat tac aaa aag acc acc aat ggg cgg ctt cca gtc aag tgg atg gct    2434
Tyr Tyr Lys Lys Thr Thr Asn Gly Arg Leu Pro Val Lys Trp Met Ala
            660                 665                 670

cca gaa gcc ctg ttt gat aga gta tac act cat cag agt gat gtc tgg    2482
Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr His Gln Ser Asp Val Trp
        675                 680                 685

tcc ttc ggg gtg tta atg tgg gag atc ttc act tta ggg ggc tcg ccc    2530
Ser Phe Gly Val Leu Met Trp Glu Ile Phe Thr Leu Gly Gly Ser Pro
    690                 695                 700

tac cca ggg att ccc gtg gag gaa ctt ttt aag ctg ctg aag gaa gga    2578
Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys Leu Leu Lys Glu Gly
705                 710                 715                 720

cac aga atg gat aag cca gcc aac tgc acc aac gaa ctg tac atg atg    2626
His Arg Met Asp Lys Pro Ala Asn Cys Thr Asn Glu Leu Tyr Met Met
                725                 730                 735

atg agg gac tgt tgg cat gca gtg ccc tcc cag aga cca acg ttc aag    2674
Met Arg Asp Cys Trp His Ala Val Pro Ser Gln Arg Pro Thr Phe Lys
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            740                 745                 750

cag ttg gta gaa gac ttg gat cga att ctc act ctc aca acc aat gag    2722
Gln Leu Val Glu Asp Leu Asp Arg Ile Leu Thr Leu Thr Thr Asn Glu
        755                 760                 765

taa agccaaggat atgggaggga aaaaaagggg aaagagtcat ggaaagccag         2775



cttcttgctg aaactccact aggtgccctg ctggaatctc ccttgaaaga g           2826


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<212> DNA
<213> Homo sapiens

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<221> CDS
<222> (1)...(99)

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Asp Leu Asp Arg Ile Leu Thr Leu Thr Thr Asn Glu Glu Tyr Leu Asp
  1               5                  10                  15

ctc agt cag cct ctc gaa ccg tat tca cct tgt tat cct gac cca aga      96
Leu Ser Gln Pro Leu Glu Pro Tyr Ser Pro Cys Tyr Pro Asp Pro Arg
             20                  25                  30

tga ataaaacgt ctctcttccc ttctttcagg aatacttgga cctcagccaa          149



cctctcgaac agtattcacc tagttaccct gacacaagaa gttcttgttc ttcaggagat  209

gattctgttt tttctccaga ccccatgcct tacgaaccat gccttcctca gtatccacac  269

ataaacggca gtgttaaaac atgaatgact gtgtctgcct g                      310
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ccgggggccc cgaggccgca gcttgcctgc gcgctctgag ccttcgcaac tcgcgagcaa 180

agtttggtgg aggcaacgcc aagcctgagt cctttcttcc tctcgttccc caaatccgag 240

ggcagcccgc gggcgtcatg cccgcgctcc tccgcagcct ggggtacgcg tgaagcccgg 300

gaggcttggc gccggcgaag acccaaggac cactcttctg cgtttggagt tgctccccac 360

aaccccgggc tcgtcgcttt ctccatcccg acccacgcgg ggcgcgggga caacacaggt 420

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gcccaccgca ggctgaaggc attgcgcgta gtccatgccc gtagaggaag tgtgcagatg 540

ggattaacgt ccacatggag atatggaaga ggaccgggga ttggtaccgt aacc atg 597
Met
1

gtc agc tgg ggt cgt ttc atc tgc ctg gtc gtg gtc acc atg gca acc 645
Val Ser Trp Gly Arg Phe Ile Cys Leu Val Val Val Thr Met Ala Thr
5 10 15

ttg tcc ctg gcc cgg ccc tcc ttc agt tta gtt gag gat acc aca tta 693
Leu Ser Leu Ala Arg Pro Ser Phe Ser Leu Val Glu Asp Thr Thr Leu
20 25 30

gag cca gaa gat gcc atc tca tcc gga gat gat gag gat gac acc gat 741
Glu Pro Glu Asp Ala Ile Ser Ser Gly Asp Asp Glu Asp Asp Thr Asp

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     35                  40                  45

ggt gcg gaa gat ttt gtc agt gag aac agt aac aac aag aga gca cca     789
Gly Ala Glu Asp Phe Val Ser Glu Asn Ser Asn Asn Lys Arg Ala Pro
 50                  55                  60                  65

tac tgg acc aac aca gaa aag atg gaa aag cgg ctc cat gct gtg cct     837
Tyr Trp Thr Asn Thr Glu Lys Met Glu Lys Arg Leu His Ala Val Pro
                 70                  75                  80

gcg gcc aac act gtc aag ttt cgc tgc cca gcc ggg ggg aac cca atg     885
Ala Ala Asn Thr Val Lys Phe Arg Cys Pro Ala Gly Gly Asn Pro Met
             85                  90                  95

cca acc atg cgg tgg ctg aaa aac ggg aag gag ttt aag cag gag cat     933
Pro Thr Met Arg Trp Leu Lys Asn Gly Lys Glu Phe Lys Gln Glu His
        100                 105                 110

cgc att gga ggc tac aag gta cga aac cag cac tgg agc ctc att atg     981
Arg Ile Gly Gly Tyr Lys Val Arg Asn Gln His Trp Ser Leu Ile Met
    115                 120                 125

gaa agt gtg gtc cca tct gac aag gga aat tat acc tgt gtg gtg gag    1029
Glu Ser Val Val Pro Ser Asp Lys Gly Asn Tyr Thr Cys Val Val Glu
130                 135                 140                 145

aat gaa tac ggg tcc atc aat cac acg tac cac ctg gat gtt gtg gag    1077
Asn Glu Tyr Gly Ser Ile Asn His Thr Tyr His Leu Asp Val Val Glu
                150                 155                 160

cga tcg cct cac cgg ccc atc ctc caa gcc gga ctg ccg gca aat gcc    1125
Arg Ser Pro His Arg Pro Ile Leu Gln Ala Gly Leu Pro Ala Asn Ala
            165                 170                 175

tcc aca gtg gtc gga gga gac gta gag ttt gtc tgc aag gtt tac agt    1173
Ser Thr Val Val Gly Gly Asp Val Glu Phe Val Cys Lys Val Tyr Ser
        180                 185                 190

gat gcc cag ccc cac atc cag tgg atc aag cac gtg gaa aag aac ggc    1221
Asp Ala Gln Pro His Ile Gln Trp Ile Lys His Val Glu Lys Asn Gly
    195                 200                 205

agt aaa tac ggg ccc gac ggg ctg ccc tac ctc aag gtt ctc aag cac    1269
Ser Lys Tyr Gly Pro Asp Gly Leu Pro Tyr Leu Lys Val Leu Lys His
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210                 215                 220                 225

tcg ggg ata aat agt tcc aat gca gaa gtg ctg gct ctg ttc aat gtg    1317
Ser Gly Ile Asn Ser Ser Asn Ala Glu Val Leu Ala Leu Phe Asn Val
                230                 235                 240

acc gag gcg gat gct ggg gaa tat ata tgt aag gtc tcc aat tat ata    1365
Thr Glu Ala Asp Ala Gly Glu Tyr Ile Cys Lys Val Ser Asn Tyr Ile
            245                 250                 255

ggg cag gcc aac cag tct gcc tgg ctc act gtc ctg cca aaa cag caa    1413
Gly Gln Ala Asn Gln Ser Ala Trp Leu Thr Val Leu Pro Lys Gln Gln
        260                 265                 270

gcg cct gga aga gaa aag gag att aca gct tcc cca gac tac ctg gag    1461
Ala Pro Gly Arg Glu Lys Glu Ile Thr Ala Ser Pro Asp Tyr Leu Glu
    275                 280                 285

ata gcc att tac tgc ata ggg gtc ttc tta atc gcc tgt atg gtg gta    1509
Ile Ala Ile Tyr Cys Ile Gly Val Phe Leu Ile Ala Cys Met Val Val
290                 295                 300                 305

aca gtc atc ctg tgc cga atg aag aac acg acc aag aag cca gac ttc    1557
Thr Val Ile Leu Cys Arg Met Lys Asn Thr Thr Lys Lys Pro Asp Phe
                310                 315                 320

agc agc cag ccg gct gtg cac aag ctg acc aaa cgt atc ccc ctg cgg    1605
Ser Ser Gln Pro Ala Val His Lys Leu Thr Lys Arg Ile Pro Leu Arg
            325                 330                 335

aga cag gtt tcg gct gag tcc agc tcc tcc atg aac tcc aac acc ccg    1653
Arg Gln Val Ser Ala Glu Ser Ser Ser Ser Met Asn Ser Asn Thr Pro
        340                 345                 350

ctg gtg agg ata aca aca cgc ctc tct tca acg gca gac acc ccc atg    1701
Leu Val Arg Ile Thr Thr Arg Leu Ser Ser Thr Ala Asp Thr Pro Met
    355                 360                 365

ctg gca ggg gtc tcc gag tat gaa ctt cca gag gac cca aaa tgg gag    1749
Leu Ala Gly Val Ser Glu Tyr Glu Leu Pro Glu Asp Pro Lys Trp Glu
370                 375                 380                 385

ttt cca aga gat aag ctg aca ctg ggc aag ccc ctg gga gaa ggt tgc    1797
Phe Pro Arg Asp Lys Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly Cys
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                390                 395                 400

ttt ggg caa gtg gtc atg gcg gaa gca gtg gga att gac aaa gac aag    1845
Phe Gly Gln Val Val Met Ala Glu Ala Val Gly Ile Asp Lys Asp Lys
            405                 410                 415

ccc aag gag gcg gtc acc gtg gcc gtg aag atg ttg aaa gat gat gcc    1893
Pro Lys Glu Ala Val Thr Val Ala Val Lys Met Leu Lys Asp Asp Ala
        420                 425                 430

aca gag aaa gac ctt tct gat ctg gtg tca gag atg gag atg atg aag    1941
Thr Glu Lys Asp Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys
    435                 440                 445

atg att ggg aaa cac aag aat atc ata aat ctt ctt gga gcc tgc aca    1989
Met Ile Gly Lys His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys Thr
450                 455                 460                 465

cag gat ggg cct ctc tat gtc ata gtt gag tat gcc tct aaa ggc aac    2037
Gln Asp Gly Pro Leu Tyr Val Ile Val Glu Tyr Ala Ser Lys Gly Asn
                470                 475                 480

ctc cga gaa tac ctc cga gcc cgg agg cca ccc ggg atg gag tac tcc    2085
Leu Arg Glu Tyr Leu Arg Ala Arg Arg Pro Pro Gly Met Glu Tyr Ser
            485                 490                 495

tat gac att aac cgt gtt cct gag gag cag atg acc ttc aag gac ttg    2133
Tyr Asp Ile Asn Arg Val Pro Glu Glu Gln Met Thr Phe Lys Asp Leu
        500                 505                 510

gtg tca tgc acc tac cag ctg gcc aga ggc atg gag tac ttg gct tcc    2181
Val Ser Cys Thr Tyr Gln Leu Ala Arg Gly Met Glu Tyr Leu Ala Ser
    515                 520                 525

caa aaa tgt att cat cga gat tta gca gcc aga aat gtt ttg gta aca    2229
Gln Lys Cys Ile His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr
530                 535                 540                 545

gaa aac aat gtg atg aaa ata gca gac ttt gga ctc gcc aga gat atc    2277
Glu Asn Asn Val Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Ile
                550                 555                 560

aac aat ata gac tat tac aaa aag acc acc aat ggg cgg ctt cca gtc    2325
Asn Asn Ile Asp Tyr Tyr Lys Lys Thr Thr Asn Gly Arg Leu Pro Val
```

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            565                 570                 575

aag tgg atg gct cca gaa gcc ctg ttt gat aga gta tac act cat cag    2373
Lys Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr His Gln
        580                 585                 590

agt gat gtc tgg tcc ttc ggg gtg tta atg tgg gag atc ttc act tta    2421
Ser Asp Val Trp Ser Phe Gly Val Leu Met Trp Glu Ile Phe Thr Leu
    595                 600                 605

ggg ggc tcg ccc tac cca ggg att ccc gtg gag gaa ctt ttt aag ctg    2469
Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys Leu
610                 615                 620                 625

ctg aag gaa gga cac aga atg gat aag cca gcc aac tgc acc aac gaa    2517
Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn Cys Thr Asn Glu
                630                 635                 640

ctg tac atg atg atg agg gac tgt tgg cat gca gtg ccc tcc cag aga    2565
Leu Tyr Met Met Met Arg Asp Cys Trp His Ala Val Pro Ser Gln Arg
            645                 650                 655

cca acg ttc aag cag ttg gta gaa gac ttg gat cga att ccc ccc aac    2613
Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg Ile Pro Pro Asn
        660                 665                 670

cct tcc ctt atg agc att ttt aga aaa tag tcttagccaa tgttctaaaa      2663
Pro Ser Leu Met Ser Ile Phe Arg Lys
    675                 680

tgctcataag gaagggttgg ggaattaccc tttagacaca agctctaaga actctggata  2723

caacgggaac ttggatggat acagtctggg cctgctgggc cagatgttcc gagggcggcc  2783

cggcaagcag cctgtcttgc acattgcaac tgactggctt aatctacggc aagagtcctt  2843

cagctccgtc acagagtact ctccaatgtg ttatagttat ccttaaagct cttcaattca  2903

aggaagtgct tggcacgttt actcttctga ctggagggga ggtatgtcac ctggatggtt  2963

gttggggaga cctcagggga ctgagttagg tctttggctg ctgactggtg atgtcgctga  3023

gg                                                                 3025
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aactcgcgag caaagtttgg tggaggcaac gccaagcctg agtcctttct tcctctcgtt 120

ccccaaatcc gagggcagcc cgcgggcgtc atgcccgcgc tcctccgcag cctggggtac 180

gcgtgaagcc cgggaggctt ggcgccggcg aagacccaag gaccactctt ctgcgtttgg 240

agttgctccc cccaaccccg ggctcgtcgc tttctccatc ccgacccacg cggggcgcgg 300

ggacaacaca ggtcgcggag gagcgttgcc attcaagtga ctgcagcagc agcggcagcg 360

cctcggttcc tgagcccacc gcaggctgaa ggcattgcgc gtagtccatg cccgtagagg 420

aagtgtgcag atgggattaa cgtccacatg gagatatgga agaggaccgg ggattggtac 480

cgtaacc atg gtc agc tgg ggt cgt ttc atc tgc ctg gtc gtg gtc acc 529
Met Val Ser Trp Gly Arg Phe Ile Cys Leu Val Val Val Thr
1 5 10

atg gca acc ttg tcc ctg gcc cgg ccc tcc ttc agt tta gtt gag gat 577
Met Ala Thr Leu Ser Leu Ala Arg Pro Ser Phe Ser Leu Val Glu Asp
15 20 25 30

acc aca tta gag cca gaa gag cca cca acc aaa tac caa atc tct caa 625
Thr Thr Leu Glu Pro Glu Glu Pro Pro Thr Lys Tyr Gln Ile Ser Gln
35 40 45

cca gaa gtg tac gtg gct gcg cca ggg gag tcg cta gag gtg cgc tgc 673
Pro Glu Val Tyr Val Ala Ala Pro Gly Glu Ser Leu Glu Val Arg Cys
50 55 60

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ctg ttg aaa gat gcc gcc gtg atc agt tgg act aag gat ggg gtg cac     721
Leu Leu Lys Asp Ala Ala Val Ile Ser Trp Thr Lys Asp Gly Val His
         65                  70                  75

ttg ggg ccc aac aat agg aca gtg ctt att ggg gag tac ttg cag ata     769
Leu Gly Pro Asn Asn Arg Thr Val Leu Ile Gly Glu Tyr Leu Gln Ile
     80                  85                  90

aag ggc gcc acg cct aga gac tcc ggc ctc tat gct tgt act gcc agt     817
Lys Gly Ala Thr Pro Arg Asp Ser Gly Leu Tyr Ala Cys Thr Ala Ser
 95                 100                 105                 110

agg act gta gac agt gaa act tgg tac ttc atg gtg aat gtc aca gat     865
Arg Thr Val Asp Ser Glu Thr Trp Tyr Phe Met Val Asn Val Thr Asp
                115                 120                 125

gcc atc tca tcc gga gat gat gag gat gac acc gat ggt gcg gaa gat     913
Ala Ile Ser Ser Gly Asp Asp Glu Asp Asp Thr Asp Gly Ala Glu Asp
            130                 135                 140

ttt gtc agt gag aac agt aac aac aag aga gca cca tac tgg acc aac     961
Phe Val Ser Glu Asn Ser Asn Asn Lys Arg Ala Pro Tyr Trp Thr Asn
        145                 150                 155

aca gaa aag atg gaa aag cgg ctc cat gct gtg cct gcg gcc aac act    1009
Thr Glu Lys Met Glu Lys Arg Leu His Ala Val Pro Ala Ala Asn Thr
    160                 165                 170

gtc aag ttt cgc tgc cca gcc ggg ggg aac cca atg cca acc atg cgg    1057
Val Lys Phe Arg Cys Pro Ala Gly Gly Asn Pro Met Pro Thr Met Arg
175                 180                 185                 190

tgg ctg aaa aac ggg aag gag ttt aag cag gag cat cgc att gga ggc    1105
Trp Leu Lys Asn Gly Lys Glu Phe Lys Gln Glu His Arg Ile Gly Gly
                195                 200                 205

tac aag gta cga aac cag cac tgg agc ctc att atg gaa agt gtg gtc    1153
Tyr Lys Val Arg Asn Gln His Trp Ser Leu Ile Met Glu Ser Val Val
            210                 215                 220

cca tct gac aag gga aat tat acc tgt gtg gtg gag aat gaa tac ggg    1201
Pro Ser Asp Lys Gly Asn Tyr Thr Cys Val Val Glu Asn Glu Tyr Gly
        225                 230                 235
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tcc atc aat cac acg tac cac ctg gat gtt gtg gag cga tcg cct cac    1249
Ser Ile Asn His Thr Tyr His Leu Asp Val Val Glu Arg Ser Pro His
    240                 245                 250

cgg ccc atc ctc caa gcc gga ctg ccg gca aat gcc tcc aca gtg gtc    1297
Arg Pro Ile Leu Gln Ala Gly Leu Pro Ala Asn Ala Ser Thr Val Val
255                 260                 265                 270

gga gga gac gta gag ttt gtc tgc aag gtt tac agt gat gcc cag ccc    1345
Gly Gly Asp Val Glu Phe Val Cys Lys Val Tyr Ser Asp Ala Gln Pro
                275                 280                 285

cac atc cag tgg atc aag cac gtg gaa aag aac ggc agt aaa tac ggg    1393
His Ile Gln Trp Ile Lys His Val Glu Lys Asn Gly Ser Lys Tyr Gly
            290                 295                 300

ccc gac ggg ctg ccc tac ctc aag gtt ctc aag gtt tcg gct gag tcc    1441
Pro Asp Gly Leu Pro Tyr Leu Lys Val Leu Lys Val Ser Ala Glu Ser
        305                 310                 315

agc tcc tcc atg aac tcc aac acc ccg ctg gtg agg ata aca aca cgc    1489
Ser Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg Ile Thr Thr Arg
    320                 325                 330

ctc tct tca acg gca gac acc ccc atg ctg gca ggg gtc tcc gag tat    1537
Leu Ser Ser Thr Ala Asp Thr Pro Met Leu Ala Gly Val Ser Glu Tyr
335                 340                 345                 350

gaa ctt cca gag gac cca aaa tgg gag ttt cca aga gat aag ctg aca    1585
Glu Leu Pro Glu Asp Pro Lys Trp Glu Phe Pro Arg Asp Lys Leu Thr
                355                 360                 365

ctg ggc aag ccc ctg gga gaa ggt tgc ttt ggg caa gtg gtc atg gcg    1633
Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln Val Val Met Ala
            370                 375                 380

gaa gca gtg gga att gac aaa gac aag ccc aag gag gcg gtc acc gtg    1681
Glu Ala Val Gly Ile Asp Lys Asp Lys Pro Lys Glu Ala Val Thr Val
        385                 390                 395

gcc gtg aag atg ttg aaa gat gat gcc aca gag aaa gac ctt tct gat    1729
Ala Val Lys Met Leu Lys Asp Asp Ala Thr Glu Lys Asp Leu Ser Asp
    400                 405                 410
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ctg gtg tca gag atg gag atg atg aag atg att ggg aaa cac aag aat    1777
Leu Val Ser Glu Met Glu Met Met Lys Met Ile Gly Lys His Lys Asn
415                 420                 425                 430

atc ata aat ctt ctt gga gcc tgc aca cag gat ggg cct ctc tat gtc    1825
Ile Ile Asn Leu Leu Gly Ala Cys Thr Gln Asp Gly Pro Leu Tyr Val
                435                 440                 445

ata gtt gag tat gcc tct aaa ggc aac ctc cga gaa tac ctc cga gcc    1873
Ile Val Glu Tyr Ala Ser Lys Gly Asn Leu Arg Glu Tyr Leu Arg Ala
            450                 455                 460

cgg agg cca ccc ggg atg gag tac tcc tat gac att aac cgt gtt cct    1921
Arg Arg Pro Pro Gly Met Glu Tyr Ser Tyr Asp Ile Asn Arg Val Pro
        465                 470                 475

gag gag cag atg acc ttc aag gac ttg gtg tca tgc acc tac cag ctg    1969
Glu Glu Gln Met Thr Phe Lys Asp Leu Val Ser Cys Thr Tyr Gln Leu
    480                 485                 490

gcc aga ggc atg gag tac ttg gct tcc caa aaa tgt att cat cga gat    2017
Ala Arg Gly Met Glu Tyr Leu Ala Ser Gln Lys Cys Ile His Arg Asp
495                 500                 505                 510

tta gca gcc aga aat gtt ttg gta aca gaa aac aat gtg atg aaa ata    2065
Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asn Asn Val Met Lys Ile
                515                 520                 525

gca gac ttt gga ctc gcc aga gat atc aac aat ata gac tat tac aaa    2113
Ala Asp Phe Gly Leu Ala Arg Asp Ile Asn Asn Ile Asp Tyr Tyr Lys
            530                 535                 540

aag acc acc aat ggg cgg ctt cca gtc aag tgg atg gct cca gaa gcc    2161
Lys Thr Thr Asn Gly Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ala
        545                 550                 555

ctg ttt gat aga gta tac act cat cag agt gat gtc tgg tcc ttc ggg    2209
Leu Phe Asp Arg Val Tyr Thr His Gln Ser Asp Val Trp Ser Phe Gly
    560                 565                 570

gtg tta atg tgg gag atc ttc act tta ggg ggc tcg ccc tac cca ggg    2257
Val Leu Met Trp Glu Ile Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly
575                 580                 585                 590
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att ccc gtg gag gaa ctt ttt aag ctg ctg aag gaa gga cac aga atg    2305
Ile Pro Val Glu Glu Leu Phe Lys Leu Leu Lys Glu Gly His Arg Met
                595                 600                 605

gat aag cca gcc aac tgc acc aac gaa ctg tac atg atg atg agg gac    2353
Asp Lys Pro Ala Asn Cys Thr Asn Glu Leu Tyr Met Met Met Arg Asp
            610                 615                 620

tgt tgg cat gca gtg ccc tcc cag aga cca acg ttc aag cag ttg gta    2401
Cys Trp His Ala Val Pro Ser Gln Arg Pro Thr Phe Lys Gln Leu Val
        625                 630                 635

gaa gac ttg gat cga att ctc act ctc aca acc aat gag gaa tac ttg    2449
Glu Asp Leu Asp Arg Ile Leu Thr Leu Thr Thr Asn Glu Glu Tyr Leu
    640                 645                 650

gac ctc agc caa cct ctc gaa cag tat tca cct agt tac cct gac aca    2497
Asp Leu Ser Gln Pro Leu Glu Gln Tyr Ser Pro Ser Tyr Pro Asp Thr
655                 660                 665                 670

aga agt tct tgt tct tca gga gat gat tct gtt ttt tct cca gac ccc    2545
Arg Ser Ser Cys Ser Ser Gly Asp Asp Ser Val Phe Ser Pro Asp Pro
                675                 680                 685

atg cct tac gaa cca tgc ctt cct cag tat cca cac ata aac ggc agt    2593
Met Pro Tyr Glu Pro Cys Leu Pro Gln Tyr Pro His Ile Asn Gly Ser
            690                 695                 700

gtt aaa aca tga atgactgtgt ctgcctgtcc ccaaacagga cagcactggg        2645
Val Lys Thr
        705

aacctagcta cactgagcag ggagaccatg cctcccagag cttgttgtct ccacttgtat  2705

atatggatca gaggagtaaa taattggaaa agtaatcagc atatgtgtaa agatttatac  2765

agttgaaaac ttgtaatctt ccccaggagg agaagaaggt ttctggagca gtggactgcc  2825

acaagccacc atgtaacccc tctcacctgc cgtgcgttct ggctgtggac cagtaggact  2885

caaggtggac gtgcgttctg ccttccttgt taattttgta ataattggag aagatttatg  2945

tcagcacaca cttacagagc acaaatgcag tatataggtg ctggatgtat gtaaatatat  3005
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tcaaattatg tataaatata tattatatat ttacaaggag ttatttttg tattgatttt 3065

aaatggatgt cccaatgcac ctagaaaatt ggtctctctt tttttaatag ctatttgcta 3125

aatgctgttc ttacacataa tttcttaatt ttcaccgagc agaggtggaa aaatactttt 3185

gctttcaggg aaaatggtat aacgttaatt tattaataaa ttggtaatat acaaaacaa 3244

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gccgcggggc tgcatgcggc gtacctggcc cggcgcggcg actgctctcc gggctggcgg 120

gggccggccg cgagccccgg gggccccgag gccgcagctt gcctgcgcgc tctgagcctt 180

cgcaactcgc gagcaaagtt tggtggaggc aacgccaagc ctgagtcctt tcttcctctc 240

gttccccaaa tccgagggca gcccgcgggc gtcatgcccg cgctcctccg cagcctgggg 300

tacgcgctga agcccgggag gcttggcgcc ggcgaagacc caaggaccac tcttctgcgt 360

ttggagttgc tccccacaac cccgggctcg tcgctttctc catcccgacc cagccggggc 420

gcggggacaa cacaggtcgc ggaggagcgt tgccattcaa gtgactgcag cagcagcggc 480

agcgcctcgg ttcctgagcc caccgcaggc tgaaggcatt gcgcgtagtc catgcccgta 540

gaggaagtgt gcagatggga ttaacgtcca catggagata tggaagagga ccggggattg 600

gtaccgtaac c atg gtc agc tgg ggt cgt ttc atc tgc ctg gtc gtg gtc 650
Met Val Ser Trp Gly Arg Phe Ile Cys Leu Val Val Val

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                1               5                  10

acc atg gca acc ttg tcc ctg gcc cgg ccc tcc ttc agt tta gtt gag      698
Thr Met Ala Thr Leu Ser Leu Ala Arg Pro Ser Phe Ser Leu Val Glu
     15                  20                  25

gat acc aca tta gag cca gaa gag cca cca acc aaa tac caa atc tct      746
Asp Thr Thr Leu Glu Pro Glu Glu Pro Pro Thr Lys Tyr Gln Ile Ser
 30                  35                  40                  45

caa cca gaa gtg tac gtg gct gcg cca ggg gag tcg cta gag gtg cgc      794
Gln Pro Glu Val Tyr Val Ala Ala Pro Gly Glu Ser Leu Glu Val Arg
                 50                  55                  60

tgc ctg ttg aaa gat gcc gcc gtg atc agt tgg act aag gat ggg gtg      842
Cys Leu Leu Lys Asp Ala Ala Val Ile Ser Trp Thr Lys Asp Gly Val
             65                  70                  75

cac ttg ggg ccc aac aat agg aca gtg ctt att ggg gag tac ttg cag      890
His Leu Gly Pro Asn Asn Arg Thr Val Leu Ile Gly Glu Tyr Leu Gln
         80                  85                  90

ata aag ggc gcc acg cct aga gac tcc ggc ctc tat gct tgt act gcc      938
Ile Lys Gly Ala Thr Pro Arg Asp Ser Gly Leu Tyr Ala Cys Thr Ala
     95                  100                 105

agt agg act gta gac agt gaa act tgg tac ttc atg gtg aat gtc aca      986
Ser Arg Thr Val Asp Ser Glu Thr Trp Tyr Phe Met Val Asn Val Thr
110                 115                 120                 125

gat gcc atc tca tcc gga gat gat gag gat gac acc gat ggt gcg gaa     1034
Asp Ala Ile Ser Ser Gly Asp Asp Glu Asp Asp Thr Asp Gly Ala Glu
                130                 135                 140

gat ttt gtc agt gag aac agt aac aac aag aga gca cca tac tgg acc     1082
Asp Phe Val Ser Glu Asn Ser Asn Asn Lys Arg Ala Pro Tyr Trp Thr
            145                 150                 155

aac aca gaa aag atg gaa aag cgg ctc cat gct gtg cct gcg gcc aac     1130
Asn Thr Glu Lys Met Glu Lys Arg Leu His Ala Val Pro Ala Ala Asn
        160                 165                 170

act gtc aag ttt cgc tgc cca gcc ggg ggg aac cca atg cca acc atg     1178
Thr Val Lys Phe Arg Cys Pro Ala Gly Gly Asn Pro Met Pro Thr Met
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    175                 180                 185

cgg tgg ctg aaa aac ggg aag gag ttt aag cag gag cat cgc att gga    1226
Arg Trp Leu Lys Asn Gly Lys Glu Phe Lys Gln Glu His Arg Ile Gly
190                 195                 200                 205

ggc tac aag gta cga aac cag cac tgg agc ctc att atg gaa agt gtg    1274
Gly Tyr Lys Val Arg Asn Gln His Trp Ser Leu Ile Met Glu Ser Val
                210                 215                 220

gtc cca tct gac aag gga aat tat acc tgt gtg gtg gag aat gaa tac    1322
Val Pro Ser Asp Lys Gly Asn Tyr Thr Cys Val Val Glu Asn Glu Tyr
            225                 230                 235

ggg tcc atc aat cac acg tac cac ctg gat gtt gtg gag cga tcg cct    1370
Gly Ser Ile Asn His Thr Tyr His Leu Asp Val Val Glu Arg Ser Pro
        240                 245                 250

cac cgg ccc atc ctc caa gcc gga ctg ccg gca aat gcc tcc aca gtg    1418
His Arg Pro Ile Leu Gln Ala Gly Leu Pro Ala Asn Ala Ser Thr Val
    255                 260                 265

gtc gga gga gac gta gag ttt gtc tgc aag gtt tac agt gat gcc cag    1466
Val Gly Gly Asp Val Glu Phe Val Cys Lys Val Tyr Ser Asp Ala Gln
270                 275                 280                 285

ccc cac atc cag tgg atc aag cac gtg gaa aag aac ggc agt aaa tac    1514
Pro His Ile Gln Trp Ile Lys His Val Glu Lys Asn Gly Ser Lys Tyr
                290                 295                 300

ggg ccc gac ggg ctg ccc tac ctc aag gtt ctc aag cac tcg ggg ata    1562
Gly Pro Asp Gly Leu Pro Tyr Leu Lys Val Leu Lys His Ser Gly Ile
            305                 310                 315

aat agt tcc aat gca gaa gtg ctg gct ctg ttc aat gtg acc gag gcg    1610
Asn Ser Ser Asn Ala Glu Val Leu Ala Leu Phe Asn Val Thr Glu Ala
        320                 325                 330

gat gct ggg gaa tat ata tgt aag gtc tcc aat tat ata ggg cag gcc    1658
Asp Ala Gly Glu Tyr Ile Cys Lys Val Ser Asn Tyr Ile Gly Gln Ala
    335                 340                 345

aac cag tct gcc tgg ctc act gtc ctg cca aaa cag caa gcg cct gga    1706
Asn Gln Ser Ala Trp Leu Thr Val Leu Pro Lys Gln Gln Ala Pro Gly
```

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350                 355                 360                 365

aga gaa aag gag att aca gct tcc cca gac tac ctg gag ata gcc att    1754
Arg Glu Lys Glu Ile Thr Ala Ser Pro Asp Tyr Leu Glu Ile Ala Ile
                370                 375                 380

tac tgc ata ggg gtc ttc tta atc gcc tgt atg gtg gta aca gtc atc    1802
Tyr Cys Ile Gly Val Phe Leu Ile Ala Cys Met Val Val Thr Val Ile
            385                 390                 395

ctg tgc cga atg aag aac acg acc aag aag cca gac ttc agc agc cag    1850
Leu Cys Arg Met Lys Asn Thr Thr Lys Lys Pro Asp Phe Ser Ser Gln
        400                 405                 410

ccg gct gtg cac aag ctg acc aaa cgt atc ccc ctg cgg aga cag gta    1898
Pro Ala Val His Lys Leu Thr Lys Arg Ile Pro Leu Arg Arg Gln Val
    415                 420                 425

aca gtt tcg gct gag tcc agc tcc tcc atg aac tcc aac acc ccg ctg    1946
Thr Val Ser Ala Glu Ser Ser Ser Ser Met Asn Ser Asn Thr Pro Leu
430                 435                 440                 445

gtg agg ata aca aca cgc ctc tct tca acg gca gac acc ccc atg ctg    1994
Val Arg Ile Thr Thr Arg Leu Ser Ser Thr Ala Asp Thr Pro Met Leu
                450                 455                 460

gca ggg gtc tcc gag tat gaa ctt cca gag gac cca aaa tgg gag ttt    2042
Ala Gly Val Ser Glu Tyr Glu Leu Pro Glu Asp Pro Lys Trp Glu Phe
            465                 470                 475

cca aga gat aag ctg aca ctg ggc aag ccc ctg gga gaa ggt tgc ttt    2090
Pro Arg Asp Lys Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe
        480                 485                 490

ggg caa gtg gtc atg gcg gaa gca gtg gga att gac aaa gac aag ccc    2138
Gly Gln Val Val Met Ala Glu Ala Val Gly Ile Asp Lys Asp Lys Pro
    495                 500                 505

aag gag gcg gtc acc gtg gcc gtg aag atg ttg aaa gat gat gcc aca    2186
Lys Glu Ala Val Thr Val Ala Val Lys Met Leu Lys Asp Asp Ala Thr
510                 515                 520                 525

gag aaa gac ctt tct gat ctg gtg tca gag atg gag atg atg aag atg    2234
Glu Lys Asp Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys Met
```

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                530                 535                 540

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Ile Gly Lys His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys Thr Gln
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gat ggg cct ctc tat gtc ata gtt gag tat gcc tct aaa ggc aac ctc    2330
Asp Gly Pro Leu Tyr Val Ile Val Glu Tyr Ala Ser Lys Gly Asn Leu
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cga gaa tac ctc cga gcc cgg agg cca ccc ggg atg gag tac tcc tat    2378
Arg Glu Tyr Leu Arg Ala Arg Arg Pro Pro Gly Met Glu Tyr Ser Tyr
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gac att aac cgt gtt cct gag gag cag atg acc ttc aag gac ttg gtg    2426
Asp Ile Asn Arg Val Pro Glu Glu Gln Met Thr Phe Lys Asp Leu Val
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Ser Cys Thr Tyr Gln Leu Ala Arg Gly Met Glu Tyr Leu Ala Ser Gln
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aaa tgt att cat cga gat tta gca gcc aga aat gtt ttg gta aca gaa    2522
Lys Cys Ile His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr Glu
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aac aat gtg atg aaa ata gca gac ttt gga ctc gcc aga gat atc aac    2570
Asn Asn Val Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Ile Asn
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aat ata gac tat tac aaa aag acc acc aat ggg cgg ctt cca gtc aag    2618
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tgg atg gct cca gaa gcc ctg ttt gat aga gta tac act cat cag agt    2666
Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr His Gln Ser
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Asp Val Trp Ser Phe Gly Val Leu Met Trp Glu Ile Phe Thr Leu Gly
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tac atg atg atg agg gac tgt tgg cat gca gtg ccc tcc cag aga cca    2858
Tyr Met Met Met Arg Asp Cys Trp His Ala Val Pro Ser Gln Arg Pro
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acg ttc aag cag ttg gta gaa gac ttg gat cga att ctc act ctc aca    2906
Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg Ile Leu Thr Leu Thr
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acc aat gag gaa tac ttg gac ctc agc caa cct ctc gaa cag tat tca    2954
Thr Asn Glu Glu Tyr Leu Asp Leu Ser Gln Pro Leu Glu Gln Tyr Ser
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cct agt tac cct gac aca aga agt tct tgt tct tca gga gat gat tct    3002
Pro Ser Tyr Pro Asp Thr Arg Ser Ser Cys Ser Ser Gly Asp Asp Ser
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Val Phe Ser Pro Asp Pro Met Pro Tyr Glu Pro Cys Leu Pro Gln Tyr
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Phe Ile Cys Leu Val Val Val Thr Met Ala Thr Leu Ser Leu Ala Arg
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Pro Ser Phe Ser Leu Val Glu Asp Thr Thr Leu Glu Pro Glu Glu Pro
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Pro Thr Lys Tyr Gln Ile Ser Gln Pro Glu Val Tyr Val Ala Ala Pro
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Gly Glu Ser Leu Glu Val Arg Cys Leu Leu Lys Asp Ala Ala Val Ile
55                  60                  65                  70

agt tgg act aag gat ggg gtg cac ttg ggg ccc aac aat agg aca gtg      533
Ser Trp Thr Lys Asp Gly Val His Leu Gly Pro Asn Asn Arg Thr Val
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Leu Ile Gly Glu Tyr Leu Gln Ile Lys Gly Ala Thr Pro Arg Asp Ser
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Gly Leu Tyr Ala Cys Thr Ala Ser Arg Thr Val Asp Ser Glu Thr Trp
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Tyr Phe Met Val Asn Val Thr Asp Ala Ile Ser Ser Gly Asp Asp Glu
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His Ala Val Pro Ala Ala Asn Thr Val Lys Phe Arg Cys Pro Ala Gly
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Gly Asn Pro Met Pro Thr Met Arg Trp Leu Lys Asn Gly Lys Glu Phe
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